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Production Keeps Up Well

Generally Favorable Reports from Steel Centers

More Activity in Pig Iron

The tenor of reports from steel selling and producing centers is still favorable. With no lines showing marked activity in new demand, production goes on at a good rate, and some producers have courage enough to look not only for a continuance of the pace reached in the second half of July, but even for an increase in the fall months.

The statistics of production by the leading interest indicate either that the steel trade is in better condition than has been appreciated, or that the Steel Corporation has of late had a slightly larger share of current shipments than was the case two or three months ago. For the present week it scheduled 76 per cent. of its ingot capacity for operation, and for a part of the past week produced 48,000 gross tons of steel ingots a day. This is at a yearly rate of 14,300,000 tons, whereas the record production of the corporation was 14,179,000 tons in 1910.

The pig iron production of two large independent companies has increased and the Steel Corporation continues to operate about two-thirds of its blast furnace capacity. It has been drawing upon its pig iron stocks lately at a rate which points to the blowing in of a few more furnaces if specifications keep up as in the past fortnight.

It is interesting to note that of the total of 11,666,000 tons of pig iron produced in the country in the first half of this year the Steel Corporation, with an output somewhat over 5,000,000 tons, contributed 42.9 per cent., against 43.3 per cent. in 1910 and 43.2 per cent. in 1901, the year of its formation.

The orders of the Carnegie Steel Company in July for billets, sheet bars and track material apart from rails were greater than those for June. Ingot production of the Steel Corporation for each of the two months was around 1,040,000 tons, but July had one less working day than June, owing to the extra holiday on Monday, July 3.

Reports do not agree entirely as to the extent to which prices of certain finished products have yielded where attractive business has come up. In steel bars, wire products and galvanized sheets variations have been reported and latterly there have been similar intimations concerning plates. Following the recent steel bar contracts by implement and wagon manufacturers, the 1.25 cent basis at Pittsburgh is more generally held.

Few noteworthy contracts in finished lines have been placed in the past week, but sellers still comment on the way in which moderate orders have come in for material for early use, showing that consumption is closely abreast of the output of the mills.

The Ensley and Chicago district rail mills have

booked 26,000 tons of rails in the past week, the two largest lots being 5500 and 3000 tons.

Wrought pipe and wire have been the two laggard lines of late, but the former gives a better account of itself this week in contracts for about 100 miles of oil and gas pipe, with an inquiry for 60 to 80 miles of 12-inch pipe for Oklahoma.

An Indiana wire company is in the market for 40,000 to 50,000 tons of rod billets for delivery over the next six months.

The foundry pig iron market is more active at Buffalo, and Chicago reports some good inquiry for foundry and malleable irons. Southern producers ask \$10.50 for No. 2 iron where deliveries run into 1912, but melters are not entering on that ground, though some of them have evidently bought iron at lower prices which will last into the new year, though shipment will be made in 1911. A large Pittsburgh interest has come into the market for 12,000 tons of foundry iron for delivery in the Pittsburgh and Cleveland districts in the last quarter of 1911 and the first quarter of 1912.

A St. Louis inquiry for 10,000 tons of basic iron for the first half of 1912 has come out, but the trade is quite at sea as to the prices to be asked. At Pittsburgh 1500 tons of Bessemer iron has sold at somewhat under \$15 at Valley furnace.

International "Co-operation" in the Steel Trade

We publish this week the stenographer's report of the iron and steel manufacturers' conference at Brussels last month, as officially given out. It makes possible some deductions as to the purposes of the proposed international organization. What it does not bring out is the reason for the adjournment of the conference with nothing more definite accomplished than the appointment of a committee to consider whether an international association on commercial lines is feasible and to report its conclusion to another convention which the committee has power to call. It will be seen that the representatives of European countries who took the floor after Judge Gary's address spoke in favor of an association; also that they regarded Judge Gary as its sponsor, and credited the steel industry of the United States with pioneering in the lines which they hoped the association would follow. In so saying they must be understood as advocating in the main the form of "co-operation" practiced by the steel manufacturers in this country since the panic of 1907.

That there were differences of opinion among the various European delegates as to the desired form and scope of the international organization was evident. But the chief obstacle to action is doubtless to be found in what has developed in the United States since the international conference in New York in October, 1910. The questions involved in the decision in the anti-trust cases and the more recent judicial and legislative—shall we also say political?—proceedings affecting the steel industry have given special significance to the government's attitude toward a movement likely to affect prices or to put any restraint upon competition. It was the steel manufacturers of the United States who gave the first impulse to the proposition for an international association. They were likewise the ones to suggest to their competitors in Europe that until the situation in this country is clearer it were better to make haste slowly in the plans set on foot last year. The delegates to Brussels from other countries, promi-

nent among them men who said at New York last year that they favored an international association, had reason to expect that some form of permanent organization would take shape at the meeting. That expectation was apparently well founded, at least up to the preliminary conference held the week previous, on the arrival of the American delegates in London.

There have been differences of opinion at times as to the economic soundness of the market policy followed by American steel manufacturers in the past few years. No serious question has been raised until recently, however, as to the legality of such co-operation; nor has it been doubted that the manufacturers have regarded their action as entirely within their rights and beneficial to the iron trade at large, as well as to collateral industries. Now that the effort to extend the Gary idea to the foreign trade in iron and steel has been postponed for an indefinite time, the question comes up, How are the leaders in the movement to get the light they are seeking?

After years of non-interference by the government with the plans of large combinations, followed by a period of prosecution and investigation, we have now the rule of the Supreme Court that to all acts alleged to be in restraint of trade is to be applied the test of their reasonableness. Now that some of the acts of large steel companies have been called in question, it is desirable that some branch of the government be constituted an authority whose direction may be sought in advance as to the policy to be followed by large manufacturing interests. The railroads have the Interstate Commerce Commission as the supervisor of their acts. It is a question whether the steel industry, in which the manufacturers have virtually been deciding for some years what is a reasonable market price for their product, may not now expect to have their decisions subjected to closer government scrutiny than heretofore. Undeniably, the great size and influence of the United States Steel Corporation, as well as the commanding importance of the steel industry itself, will make the latter a constant subject of Congressional attention. Federal incorporation, with its accompanying supervision, may be the ultimate solution of the problem. But failing that, some extension of the functions of the Bureau of Corporations may not unreasonably be expected. Thus far the call for greater publicity concerning the acts of large corporations has meant publicity after the fact. It may yet turn out that the combines themselves, including those in the steel trade, will prefer publicity in advance of taking a debatable step—publicity at least to the extent of having a decision from some officer of the government as to the legality and propriety of what is proposed. In the case of the Tennessee Company purchase of 1907, the President of the United States was consulted; but, as is well known, his acquiescence had no legal sanction.

What has been written above is suggested by the reading of the proceedings at Brussels in the light of a question raised at one of the Stanley Committee's sessions. The Brussels conference was referred to by the chairman of that committee as part of a plan for an "international steel trust" controlling the export trade and regulating competition between the steel making countries. He even suggested that the scheme was designed to nullify any reductions that might be made in American duties on steel products. The impossibility of any such arrangement is perfectly well known to anyone at all familiar with the foreign trade

in iron and steel. What was said at Brussels by the representatives of Germany and Great Britain indicates that they would not favor a division of markets, and that they do not understand that any such idea is entertained by the American manufacturers. It is equally plain, however, from a reading of the proceedings, that the proposed association will be no mere social and educational affair, but is intended to have a definite influence upon prices in international markets. The scheme of organization suggested from Austria points strongly that way.

In so far as American manufacturers participate in such an association, their acts will be judged by the same standards that apply at home. It would be no surprise, therefore, if no further action is taken as the result of the Brussels conference without the full knowledge of the Department of Justice at Washington or of the Bureau of Corporations. That may seem quite advanced to manufacturers of the old school, but it is plainly in line with the latest interpretation of government oversight of large corporations.

British Iron and Steel Exports Stationary

While our iron and steel exports increased suddenly last November and have since been averaging 175,000 tons a month, against 100,000 to 125,000 tons formerly, it is interesting to observe that British exports are proceeding at practically an unchanged rate. As is generally understood, the increase in our exports was not due in any great measure to increased demand in the international markets. Had such been the case, British exports would presumably have undergone a somewhat similar increase. If, on the other hand, our increased exports are at the expense of other iron and steel exporting countries, England is evidently not the sufferer, for we find British exports in this recent period have been at substantially the old rate. The following table, compiled from the returns of the British Board of Trade, shows the total tonnage of iron and steel exports from the United Kingdom, covering scrap, pig iron, rolled iron and steel, and cast, forged and drawn material, but not machinery:

| British Iron and Steel Exports—Gross Tons. | | |
|--|-----------|-----------|
| Months. | 1910. | 1911. |
| January | 422,166 | 396,457 |
| February | 339,297 | 333,987 |
| March | 386,838 | 398,446 |
| April | 459,436 | 391,614 |
| May | 388,824 | 424,093 |
| June | 374,078 | 403,151 |
| July | 426,670 | ..... |
| August | 366,178 | ..... |
| September | 391,446 | ..... |
| October | 404,503 | ..... |
| November | 359,298 | ..... |
| December | 387,471 | ..... |
| Total | 4,741,905 | 2,347,748 |

It will be observed that the monthly average in 1910 was a trifle less than 400,000 tons, while the same is the case in the first six months of this year. Exports by years are shown in the table below, beginning with 1905, when a slight rearrangement was made in the system of compiling the statistics:

| British Exports by Years—Gross Tons. | | | |
|--------------------------------------|-----------|------------|-----------|
| 1905 | 3,721,512 | 1908 | 4,229,508 |
| 1906 | 4,688,846 | 1909 | 4,373,381 |
| 1907 | 5,152,227 | 1910 | 4,741,905 |

In the years indicated above our exports have fluctuated in much the same manner as British exports, being very heavy in 1907, light in 1908 and heavier in 1909, but not as heavy as in 1907. Here the parallelism stops, for in 1910 we easily made a new record, passing the 1907 exports by nearly 20 per cent., while British

exports did not break the previous record. Again, our exports this year have been at a rate 63 per cent. in excess of the average of the preceding three years, whereas British exports in the first six months of this year—2,347,748 tons, or at the rate of 4,700,000 tons a year—are only 6 per cent. in excess of the average in the preceding three years.

Even with our recent increase, our tonnage figures are small compared with the British figures, for our exports this year have been at the annual rate of only 2,200,000 tons, or somewhat less than half the British exports. A large part of this British preponderance is found in pig iron and the manganese metals, as British exports of pig iron, ferromanganese, spiegeleisen and ferrosilicon have been running quite steadily in the past three years at the rate of about 100,000 tons a month, whereas our own pig-iron exports have been averaging only 13,000 tons a month, and we import the manganese metals instead of exporting them. In unfinished steel, on the other hand, we have the advantage, for we export when England imports, both from us and from Continental makers. In rails we usually fall somewhat behind, but not much, while in a number of descriptions of rolled steel we are ahead, as we conspicuously are in all wire products. We fall behind again when it comes to sheets and tin plates, in which England has enjoyed a supremacy which we have only lately come to question, and that very quietly. England's lead in total tonnage, it is thus seen, is due largely to her exports of pig iron and to her exports of products which involve a great deal of labor. In products whose manufacture we have reduced largely to a mechanical basis we have been able to take the lead.

The Intermountain Railroad Rate Decision

The possibility is strongly apparent that Eastern manufacturers may find themselves as deeply interested as the railroad companies in the recent decision of the Interstate Commerce Commission ordering a readjustment of railroad rates to intermountain points. A great deal of business is transacted between manufacturers and merchants east of Illinois with consumers and distributors on the Pacific coast and in the Rocky Mountain section. This business had been established on apparently permanent lines, so that its growth has for many years been within well-defined boundaries. This arrangement now bids fair to be completely upset by the decision. The establishment of zones with different rates in each, diminishing from east to west, introduces a completely new element in rate making.

Up to this time the rates to Pacific coast points and the Rocky Mountain region have been so arranged by the railroad companies as to enable Eastern manufacturers and merchants to compete for such trade with those established a thousand miles further west. Geographical location, therefore, gave the Central Western business men no advantages over their competitors in the East in endeavoring to reach the Pacific slope trade. If the decision of the commission meets with the approval of the courts on appeal, the business for intermountain delivery originating in the Atlantic seaboard east of the Alleghany Mountains will pay a much higher freight rate than that originating in the zones which have been laid out in the part of the country lying further west, being allowed to exceed the freight rate to the Pacific coast not more than 25 per cent.

The Pittsburgh district will be allowed to exceed the freight rate to the Pacific coast by not more than 15 per cent. The district known as Chicago territory will be permitted to make a rate not exceeding the rates to Pacific coast terminals by over 7 per cent. In the St. Paul-Minneapolis district no higher charge can be made to any intermediate place than to Pacific coast terminals. It will be seen that this arrangement will give quite important advantages to manufacturing establishments located in the interior of the country, and the closer they are to the intermountain region the greater those advantages will be.

The railroad companies are stated to be completely at sea in endeavoring to figure their possible loss in receipts which would be caused by the rate reduction imposed by the commission. They are unable to decide whether or not the reduced rate may so increase their traffic as to make up to a great extent the loss by the reduction in the rate. Eastern manufacturers are confronting a less complicated problem and it will perhaps take but little time after the new rates shall have been put in effect to determine precisely what the result will be in the volume of business handled by them. It seems clear that an important readjustment of the intermountain business in relation to the Eastern section of the country is threatened if the commission's decision is permitted to stand.

The opening of the Panama Canal three or four years hence will bring about another important readjustment. The manufacturing establishments which will then be located on the Atlantic coast will be able to reach the Pacific coast by water in much shorter time than is now the case. It is expected that shipments wholly by water from New York to San Francisco and other Pacific coast ports will then be made within two weeks. Undoubtedly at that time railroad rates will be named from the Pacific coast cities to intermountain points which will make the through rate from the Atlantic coast considerably lower than the all-rail rates to be made under the recent decision.

Two Problems of Factory Building

Every day new manufacturing enterprises are being incorporated. A large proportion of these are inaugurated by men who are for the first time "going into business for themselves." Immediately the new company is likely to be confronted with at least two questions of prime importance; 1. What kind of factory buildings? 2. Where shall the plant be located? Experience indicates that these two problems are handled unwisely with a frequency beyond apparent excuse. Moreover, the complaints one hears on every hand disclose that "going" concerns that have thriven and prospered, grievously err at some period of expansion in the solution of the same two problems. The mistakes of the wealthy corporation are not of so much concern, but most of the others begin business with too little rather than enough money, so that what may be saved to them is saved to good purpose.

The first mistake usually arises from a failure to realize that a new business should be proved to be a "good" business before one dollar is permanently invested in buildings. This may be termed a principle rather than a hard and fast rule, for in some instances buildings already erected and perhaps suitably equipped can be obtained at bargain prices. At the same time, it may be stated without any exception that a factory

building project should not be entered into on an ownership basis before the merits of a projected business as a money-making proposition have been thoroughly demonstrated. Much too frequently the proposed factory looms up as the biggest thing in the new company's horizon, when it should be only incidental to the great problem of building up a business. Where a new and untried business may easily cripple its prospects seriously, through too great an investment in plant, leaving too little of its original capital for working purposes, the "going" business has surprisingly greater resiliency under stress, and, moreover, offers an infinitely better basis for financing and for planning the new plant. Therefore, beginners should establish their business temporarily in any quarters that will do, and then wait until the business proves that a plant is necessary before building.

Deciding upon a location is scarcely less important. While many concerns succeed in spite of their location, a mistaken choice is a source of continual annoyance and ordinarily is possible of change only at great cost. The new company is the prey—and, strange to say, is often flattered thereby—of the enterprising "improvement associations" of a dozen towns, to say nothing of the now numerous "land associations." It is indeed unfortunate that so many too energetic folks in suburbs and villages are inspired to make manufacturing towns of these hamlets, wholly regardless of their qualifications therefor. The tendency to boom towns that never should be anything but farming or residence communities, by enticing unwary enterprises to locate, has resulted in no end of harm to those industries and no ultimate good to the community. There are now for sale hundreds of abandoned plants all over the country that stand as a striking condemnation of such incongruous and ill-advised endeavor.

Before considering the question of a building site a company should have available sufficient resources to acquire ownership of the land without fear or favor. So situated, the company is not likely to be influenced to forego really necessary facilities in order to take advantage of the tempting concessions offered. More often than otherwise the new company starts out with too little money. It follows that the cash bonuses, free sites and building material, easy taxes, etc.—the common bait held out—come to be reckoned upon as a part of the company's available capital and as necessary to the inception of the enterprise. To so consider these inducements is unqualifiedly wrong. Thus, the most liberal offer becomes the most attractive, while considerations having to do with operating conditions, in the particular locality, are made secondary or entirely submerged. It may be accepted as almost axiomatic that the most liberal offer will emanate from the least desirable location. It cannot be too strongly emphasized that no such inducements, however liberal they may be, are sufficient to justify the permanent handicapping of operating economy. The merits of every location should first be considered wholly apart from the terms of acquisition, and the unsatisfactory site should be rejected regardless of the gifts which are handed out with it. This may seem an extreme ruling, but if a business is worth the building of a plant it may be expected to continue for many years, and the earnings of the business will dwarf original considerations into insignificance. On the other hand, the disadvantages of location that at first may seem trifling will roll up into mountains of annoyance as they are accentuated by the growth of the business and the passing of time.

Half-Yearly Pig Iron Statistics

The statistics of the American Iron and Steel Association, just completed by General Manager James M. Swank, show that the production of pig iron in the United States in the first half of 1911 was 11,665,796 gross tons, against 12,324,829 tons in the same half of 1910 and 14,978,738 tons in the first half. These totals include spiegel-eisen, ferromanganese and ferrosilicon. The decrease in production in the first half of 1911 from that of the second half of 1910 was 659,033 tons, and from that of the first half of 1910, 3,312,842 tons.

The production of Bessemer and low-phosphorus pig iron in the first half of 1911 was 4,704,424 tons, against 4,921,759 tons in the last half of 1910 (a decrease of 217,335 tons) and 6,323,883 tons in the first half of 1910.

The production of basic pig iron in the first half of 1911, not including charcoal of basic quality, was 3,935,487 tons, against 4,140,666 tons in the last half of 1910 (a decrease of 205,179 tons) and 4,943,942 tons in the first half.

The production of charcoal pig iron in the first half of 1911 was 160,847 tons, against 176,854 tons in the last half of 1910 (a decrease of 16,007 tons) and 219,653 tons in the first half.

The production of spiegel-eisen and ferromanganese in the first half of 1911 was 77,595 tons, against 93,484 tons in the last half of 1910 and 130,947 tons in the first half. The production of spiegel-eisen alone in the first half of 1911 was 43,429 tons, and of ferromanganese alone the production was 34,166 tons.

The Standard Oil Company's Dissolution

The Standard Oil Company has made public part of its plan of reorganization under the decree of the Supreme Court. There is to be a thorough segregation. The Standard Oil Company of New Jersey will distribute ratably to its stockholders shares of stocks of 33 companies which it owns directly or through its ownership of stock of the National Transit Company. The distribution will be made to the stockholders of the Standard Oil Company of New Jersey of record September 1, 1911. Books will close August 31 and be kept closed until the date that the stocks are ready for distribution, which will be about December 1.

From reliable sources the Wall Street Journal learns that the decimal of distribution will be five shares of Standard Oil Company of New Jersey. On a basis of five shares of the stock of the Jersey corporation, a holder of that amount of stock will receive fractional shares in each of 30 subsidiary companies and one full share or more in each of three constituent properties. A holder of, say, one, two, three or four shares will receive a full share in any one company of the 33 subsidiaries that must separate themselves from the parent concern. The distribution of the shares of the 33 subsidiaries will range from 1-100 part of a share to a full share in exchange for five Standard Oil Company of New Jersey shares.

Obituary

George Capwell Avery

George C. Avery, president of B. F. Avery & Sons, Inc., Louisville, Ky., died in France July 24, aged 59 years. He was a son of B. F. Avery, the founder of the company. Born in Louisville, he was a graduate of the ward and high schools of that city and of the Massachusetts Institute of Technology, Boston, and had taken special courses in classical and mechanical branches in several of the leading European universities. Thus, thoroughly equipped, in 1873 he entered the plow manufactory which had been established by his father in 1825, obtaining practical experience in every department of the works. He soon became the superintendent of the factory and gradually extended his field of usefulness in the business until he was made president of the corporation in 1892, which office he held continuously until his death.

Mr. Avery was a thorough mechanic and mechanical engineer and was a designer and inventor of many improved devices and complete implements in the field of agricultural machinery and of machinery used in the pro-

duction of plows and agricultural implements. Throughout his 38 years' connection with the plow manufactory he gave especial attention to the manufacturing department. Under his administration the business and the works gradually enlarged until the ground space available at the old factory location proved insufficient and he planned for the erection of an entirely new plant on a 35-acre tract of ground partly within the city limits of Louisville, the construction of which was begun in 1909 and completed in 1910. This new plant, which is conceded to be one of the most complete, modern and extensive in its line in the whole country, was designed, erected and equipped in every particular by Mr. Avery, who survived one year to direct and observe its operations to his entire satisfaction and gratification. He succeeded his brother, Samuel L. Avery, in the presidency of B. F. Avery & Sons in 1892, and was preceded in death by him and his only other brother, William Sidney Avery, both of whom were long connected with the business. From the establishment of the business, a period of 86 years, either the parent founder or one of his sons was in unbroken charge of it, a record probably unexcelled in this country for direct control of one business by members of an immediate family. Mr. Avery leaves a widow and an only daughter. His venerable mother, Mrs. Susan Look Avery, is still vigorous at 94 years of age.

Mr. Avery was methodical and systematic in the conduct of his business and found time for reading and study. He was one of the best read men in Louisville, a lover and patron of art and music, and had traveled extensively. When heart failure suddenly terminated his life, he was on his annual summer vacation of several months at his Chateau St. Michel, Gaillefontaine, Seine Inferieure, France.

A note from the company, accompanying a biographical sketch, from which the above obituary was abstracted, says: "Mr. Avery was a regular reader of *The Iron Age* throughout the 50 years covered by his school days and business life. Upon his return from his summer vacations he would systematically scan the issues of *The Iron Age* which had come to his desk during his absence. He esteemed it as the model trade journal."

HYATT S. HASELTON, secretary in charge of the iron ore mining department of Pickands, Mather & Co., Cleveland, died in that city July 27 of a stroke of apoplexy. He had been in rather poor health for some months, although attending to his office duties as usual, but his demise was entirely unexpected. He had entered the Union Club at lunch time when he sank upon a sofa and before medical aid could be summoned had expired. He was 52 years old. When a youth, Mr. Haselton was a stenographer in a Michigan iron ore mining company's office, invested his savings in the shares of a rather unpromising mine but reaped the reward of his shrewdness later when the mine became a dividend payer. About 30 years ago he became connected with the North Chicago Rolling Mill Company, at Milwaukee, and later became secretary of the Metropolitan Iron & Land Company which operated the Norrie mine at Ironwood, Mich. When the Oliver-Carnegie interests took over the Norrie mine, Mr. Haselton became connected with Pickands, Mather & Co. in their Cleveland offices. He leaves a widow and five children.

HENRY CLAY LARRABEE, Baltimore, Md., president of the iron foundry company in that city which bears his name, died July 29, aged 82 years. He left no family, his wife and children having died some years ago.

L. G. Fiscus, of Apollo, Pa., advises us that he is organizing a company to erect two 50-ton open-hearth furnaces and eight hot-sheet and tin-plate mills, together with a blooming mill, at Apollo, Pa. The new company proposes to make galvanized barrels, tin cans, shovels and graniteware. Mr. Fiscus states that the new company will be capitalized at \$600,000 and he expects to start work on the new plant as soon as sufficient money has been raised. He further says that citizens of Apollo will invest \$150,000 in the new enterprise.

The fourth annual convention of the Atlantic Deep Waterways Association will be held at Richmond, Va., October 17 to 20. An elaborate programme of business and pleasure has been arranged. Hotel Jefferson will be headquarters.

S. DIESCHER & SONS,
Mechanical and Civil Engineers,
PITTSBURGH, PA.

The Iron and Metal Markets

Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

| | Aug. 2, 1911. | July 26, 1911. | July 5, 1911. | Aug. 3, 1910. |
|--------------------------------------|---------------|----------------|---------------|---------------|
| PIG IRON, Per Gross Ton: | | | | |
| Foundry No. 2 standard, Philadelphia | \$15.00 | \$15.00 | \$15.00 | \$16.00 |
| Foundry No. 2, Valley furnace | 13.50 | 13.50 | 13.50 | 14.25 |
| Foundry No. 2 Southern, Cincinnati | 13.25 | 13.25 | 13.25 | 14.50 |
| Foundry No. 2, Birmingham, Ala. | 10.00 | 10.00 | 10.00 | 11.25 |
| Foundry No. 2, at furnace, Chicago* | 14.50 | 14.50 | 15.00 | 16.50 |
| Basic, delivered, eastern Pa. | 14.50 | 14.50 | 14.50 | 15.25 |
| Basic, Valley furnace | 13.00 | 13.00 | 13.25 | 14.25 |
| Bessemer, Pittsburgh | 15.90 | 15.90 | 15.90 | 16.15 |
| Gray forge, Pittsburgh | 13.90 | 13.90 | 13.90 | 14.40 |
| Lake Superior charcoal, Chicago | 16.50 | 16.50 | 16.50 | 18.50 |

COKE, CONNELLSVILLE,

| | | | | |
|--------------------------------|------|------|------|------|
| Per Net Ton, at Oven: | | | | |
| Furnace coke, prompt shipment. | 1.45 | 1.50 | 1.45 | 1.55 |
| Furnace coke, future delivery. | 1.60 | 1.65 | 1.60 | 1.80 |
| Foundry coke, prompt shipment. | 1.85 | 1.85 | 1.85 | 2.15 |
| Foundry coke, future delivery. | 2.00 | 2.00 | 2.10 | 2.25 |

BILLETS, &c., Per Gross Ton:

| | | | | |
|-----------------------------------|-------|-------|-------|-------|
| Bessemer billets, Pittsburgh | 21.00 | 21.00 | 21.00 | 24.50 |
| Forging billets, Pittsburgh | 26.00 | 26.00 | 26.00 | 30.00 |
| Open hearth billets, Philadelphia | 23.40 | 23.40 | 23.40 | 27.50 |
| Wire rods, Pittsburgh | 27.90 | 27.00 | 27.00 | 28.50 |

OLD MATERIAL, Per Gross Ton:

| | | | | |
|---------------------------------|-------|-------|-------|-------|
| Iron rails, Chicago | 14.00 | 14.00 | 14.00 | 16.50 |
| Iron rails, Philadelphia | 17.50 | 17.50 | 16.50 | 18.00 |
| Car wheels, Chicago | 12.75 | 12.50 | 12.50 | 14.50 |
| Car wheels, Philadelphia | 13.00 | 13.00 | 13.00 | 14.00 |
| Heavy steel scrap, Pittsburgh | 13.25 | 13.25 | 13.00 | 14.50 |
| Heavy steel scrap, Chicago | 10.75 | 10.50 | 10.25 | 12.25 |
| Heavy steel scrap, Philadelphia | 13.50 | 13.50 | 13.00 | 13.75 |

FINISHED IRON AND STEEL,

| | | | | |
|----------------------------------|--------|--------|--------|--------|
| Per Pound: | Cents. | Cents. | Cents. | Cents. |
| Bessemer rails, heavy, at mill. | 1.25 | 1.25 | 1.25 | 1.25 |
| Refined iron bars, Philadelphia | 1.27½ | 1.27½ | 1.27½ | 1.42½ |
| Common iron bars, Pittsburgh | 1.25 | 1.25 | 1.25 | 1.45 |
| Common iron bars, Chicago | 1.20 | 1.20 | 1.20 | 1.40 |
| Steel bars, Pittsburgh | 1.20 | 1.20 | 1.25 | 1.40 |
| Steel bars, tidewater, New York | 1.36 | 1.36 | 1.41 | 1.56 |
| Tank plates, Pittsburgh | 1.35 | 1.35 | 1.35 | 1.40 |
| Tank plates, tidewater, New York | 1.51 | 1.51 | 1.51 | 1.56 |
| Beams, Pittsburgh | 1.35 | 1.35 | 1.35 | 1.40 |
| Beams, tidewater, New York | 1.51 | 1.51 | 1.51 | 1.56 |
| Angles, Pittsburgh | 1.35 | 1.35 | 1.35 | 1.40 |
| Angles, tidewater, New York | 1.51 | 1.51 | 1.51 | 1.56 |
| Skelp, grooved steel, Pittsburgh | 1.20 | 1.25 | 1.25 | 1.50 |
| Skelp, sheared steel, Pittsburgh | 1.30 | 1.35 | 1.35 | 1.60 |

SHEETS, NAILS AND WIRE,

| | | | | |
|-----------------------------------|--------|--------|--------|--------|
| Per Pound: | Cents. | Cents. | Cents. | Cents. |
| Sheets, black, No. 28, Pittsburgh | 2.00 | 2.00 | 2.00 | 2.25 |
| Wire nails, Pittsburgh | 1.70 | 1.70 | 1.70 | 1.70 |
| Cut nails, Pittsburgh | 1.60 | 1.60 | 1.60 | 1.65 |
| Barb wire, galv., Pittsburgh | 2.00 | 2.00 | 2.00 | 2.00 |

METALS,

| | | | | |
|----------------------------------|--------|--------|--------|--------|
| Per Pound: | Cents. | Cents. | Cents. | Cents. |
| Lake copper, New York | 12.75 | 12.75 | 12.87½ | 12.75 |
| Electrolytic copper, New York | 12.02½ | 12.60 | 12.62½ | 12.50 |
| Spelter, St. Louis | 5.70 | 5.60 | 5.60 | 5.05 |
| Spelter, New York | 5.00 | 5.80 | 5.80 | 5.20 |
| Lead, St. Louis | 4.45 | 4.45 | 4.35 | 4.25 |
| Lead, New York | 4.50 | 4.50 | 4.50 | 4.40 |
| Tin, New York | 42.00 | 42.00 | 45.40 | 33.20 |
| Antimony, Hallert, New York | 8.00 | 8.00 | 8.12½ | 8.00 |
| Tin plate, 100-lb. box, New York | \$3.94 | \$3.94 | \$3.94 | \$3.84 |

* The average switching charge for delivery to foundries in the Chicago district is 50c. per ton.

† These prices are for largest lots to jobbers.

on one or both legs, less than ¼ in. thick, 1.40c. plus full extras as per steel bar card effective September 1, 1909; tees, 3 in. and up, 1.40c. net; zeos, 3 in. and up, 1.35c. to 1.40c. net; angles, channels and tees under 3 in., 1.40c. base, plus full extras as per steel bar card of September 1, 1909; deck beams and bulb angles, 1.65c. to 1.70c. net; hand rail tees, 2.45c.; checkered and corrugated plates, 2.45c. net.

Plates.—Tank plates, ¼ in. thick, 6¼ in. up to 100 in. wide, 1.35c. to 1.40c. base. Following are stipulations prescribed by manufacturers, with extras to be added to base price (per pound) of plates:

Rectangular plates, tank steel or conforming to manufacturers' standard specifications for structural steel dated February 6, 1903, or equivalent, ¼ in. thick and over on thinnest edge, 100 in. wide and under, down to but not including 6 in. wide, are base.

Plates up to 72 in. wide, inclusive, ordered 10.2 lb. per square foot, are considered ¾ in. plates. Plates over 72 in. wide must be ordered ¾ in. thick on edge, or not less than 11 lb. per square foot, to take base price. Plates over 72 in. wide ordered less than 11 lb. per square foot down to the weight of 3-16 in. take the price of 3-16 in.

Allowable overweight, whether plates are ordered to gauge or weight to be governed by the standard specifications of the Association of American Steel Manufacturers.

| | |
|---|---------------|
| Gauges under ¼ in. to and including 3-16 in. on thin nest edge, extra | Cents per lb. |
| Gauges under 3-16 in. to and including No. 8 | .10 |
| Gauges under No. 8 to and including No. 9 | .15 |
| Gauges under No. 9 to and including No. 10 | .25 |
| Gauges under No. 10 to and including No. 12 | .30 |
| Sketches (including all straight taper plates) 3 ft. and over in length | .40 |
| Complete circles, 3 ft. in diameter and over | .50 |
| Boiler and flange steel | .20 |
| "A. B. M. A." and ordinary firebox steel | .10 |
| Still bottom steel | .30 |
| Marine steel | .40 |
| Locomotive firebox steel | .50 |
| Widths over 100 in. up to 110 in., inclusive | .05 |
| Widths over 110 in. up to 115 in., inclusive | .10 |
| Widths over 115 in. up to 120 in., inclusive | .15 |
| Widths over 120 in. up to 125 in., inclusive | .25 |
| Widths over 125 in. to 130 in., inclusive | .50 |
| Widths over 130 in. | 1.00 |
| Cutting to lengths or diameters under 3 ft. to 2 ft. inclusive | .25 |
| Cutting to lengths or diameters under 2 ft. to 1 ft. inclusive | .50 |
| Cutting to lengths or diameters under 1 ft. | 1.55 |
| No charge for cutting rectangular plates to lengths 3 ft. and over | |
| TERMS—Net cash 30 days. | |

Sheets.—Makers' prices for mill shipments on sheets in carload and larger lots, on which jobbers charge the usual discounts for small lots from store, are as follows: Blue annealed sheets, Nos. 3 to 8, U. S. standard gauge, 1.40c.; Nos. 9 and 10, 1.50c.; Nos. 11 and 12, 1.55c.; Nos. 13 and 14, 1.60c.; Nos. 15 and 16, 1.70c. One pass, cold rolled, box annealed sheets, Nos. 10 to 12, 1.65c.; Nos. 13 and 14, 1.70c.; Nos. 15 and 16, 1.75c.; Nos. 17 to 21, 1.80c.; Nos. 22, 23 and 24, 1.85c.; Nos. 25 and 26, 1.90c.; No. 27, 1.95c.; No. 28, 2c.; No. 29, 2.05c.; No. 30, 2.15c. Three pass, cold rolled sheets, box annealed, are as follows: Nos. 15 and 16, 1.85c.; Nos. 17 to 21, 1.90c.; Nos. 22 to 24, 1.95c.; Nos. 25 and 26, 2c.; No. 27, 2.05c.; No. 28, 2.10c.; No. 29, 2.15c.; No. 30, 2.25c. Galvanized sheets, Nos. 10 and 11, black sheet gauge, 2c.; Nos. 12, 13 and 14, 2.10c.; Nos. 15, 16 and 17, 2.25c.; Nos. 18 to 22, 2.40c.; Nos. 23 and 24, 2.50c.; Nos. 25 and 26, 2.70c.; No. 27, 2.85c.; No. 28, 3c.; No. 29, 3.10c.; No. 30, 3.30c. All above prices are f.o.b. Pittsburgh, terms 30 days net, or 2 per cent. cash discount 10 days from date of invoice, as also are the following base prices per square for painted and galvanized roofing sheets, with 2½ in. corrugations:

| Gauge. | Painted. | Galvanized. | Gauge. | Painted. | Galvanized. |
|--------|----------|-------------|--------|----------|-------------|
| 29 | 2.40 | 2.55 | 23 | 2.40 | 2.50 |
| 28 | 1.40 | 2.55 | 22 | 2.60 | 2.70 |
| 27 | 1.55 | 2.60 | 21 | 2.80 | 2.90 |
| 26 | 1.65 | 2.65 | 20 | 3.05 | 3.15 |
| 25 | 1.85 | 3.05 | 18 | 4.05 | 4.15 |
| 24 | 2.10 | 3.15 | 16 | 4.90 | 5.00 |

Wrought Pipe.—The following are the jobbers' carload discounts on the Pittsburgh basing card on wrought pipe, in effect from October 1, 1910:

| | Butt Weld. | | Steel | | Iron | |
|--------------|------------|-------|--------|-------|--------|-------|
| | Black. | Galv. | Black. | Galv. | Black. | Galv. |
| 1 to 1½ in. | 75 | 63 | 71 | 59 | 49 | 43 |
| ¾ in. | 75 | 63 | 71 | 59 | 49 | 43 |
| ¾ to 1½ in. | 79 | 69 | 75 | 65 | 53 | 47 |
| 2 to 3 in. | 80 | 70 | 76 | 66 | 57 | 51 |
| Lap Weld. | | | | | | |
| 2 in. | 76 | 66 | 72 | 62 | 45 | 39 |
| 2½ to 4 in. | 78 | 67 | 74 | 64 | 47 | 41 |
| 4½ to 6 in. | 77 | 67 | 73 | 63 | 46 | 40 |
| 7 to 12 in. | 75 | 59 | 71 | 55 | 44 | 38 |
| 13 to 15 in. | 51½ | .. | .. | .. | 42 | 36 |

Prices of Finished Iron and Steel f.o.b. Pittsburgh

Freight rates from Pittsburgh in carloads, per 100 lb.: New York, 16c.; Philadelphia, 15c.; Boston, 18c.; Buffalo, 11c.; Cleveland, 10c.; Cincinnati, 15c.; Indianapolis, 17c.; Chicago, 18c.; St. Paul, 32c.; St. Louis, 22½c.; New Orleans, 30c.; Birmingham, Ala., 45c. Rates to the Pacific Coast are 80c. on plates, structural shapes and sheets, No. 11 and heavier; 85c. on sheets, Nos. 12 to 16; 95c. on sheets, No. 16 and lighter; 65c. on wrought boiler tubes.

Structural Material.—I-beams and channels, 3 to 15 in., inclusive, 1.35c. to 1.40c. net; I-beams over 15 in., 1.45c. to 1.50c. net; H-beams over 18 in., 1.50c. to 1.55c.; angles, 3 to 6 in. inclusive, ¼ in. and up, 1.35c. to 1.40c. net; angles over 6 in., 1.45c. to 1.50c. net; angles, 3 in.

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| Butt Weld, extra strong, plain ends, card weight. | | | |
|--|----|----|----|
| 1 3/4, 3/4 in. | 69 | 59 | 55 |
| 3/4 in. | 74 | 68 | 64 |
| 2 to 1 1/2 in. | 78 | 72 | 68 |
| 2 to 3 in. | 79 | 73 | 69 |
| Lap Weld, extra strong, plain ends, card weight. | | | |
| 2 in. | 73 | 69 | 65 |
| 2 1/2 to 4 in. | 77 | 71 | 67 |
| 4 1/2 to 6 in. | 76 | 70 | 66 |
| 7 to 8 in. | 69 | 59 | 55 |
| 9 to 12 in. | 64 | 54 | 50 |
| Butt Weld, double extra strong, plain ends, card weight. | | | |
| 3/4 in. | 64 | 58 | 54 |
| 2 to 1 1/2 in. | 67 | 61 | 57 |
| 2 to 3 in. | 69 | 63 | 59 |
| Lap Weld, double extra strong, plain ends, card weight. | | | |
| 2 in. | 65 | 59 | 55 |
| 2 1/2 to 4 in. | 67 | 61 | 57 |
| 4 1/2 to 6 in. | 66 | 60 | 56 |
| 7 to 8 in. | 59 | 49 | 56 |

Plugged and Reamed.

| | |
|----------------------------------|--|
| 1 to 1 1/2, 2 to 3 in. Butt Weld | will be sold at two (2) points lower basing (higher price) than merchants or card weight pipe. Butt or lap weld, as specified. |
| 2, 2 1/2 to 4 in. Lap Weld | |

The above discounts are for "card weight," subject to the usual variation of 5 per cent. Prices for less than carloads are three (3) points lower basing (higher price) than the above discounts.

Boiler Tubes.—Discounts on lap welded steel boiler tubes to jobbers in carloads are as follows:

| | Steel. |
|--------------------|--------|
| 1 3/4 to 2 1/4 in. | 65 |
| 2 1/4 in. | 67 1/2 |
| 2 1/4 to 3 1/4 in. | 70 |
| 3 1/4 to 4 1/4 in. | 72 1/2 |
| 5 to 6 in. | 65 |
| 7 to 13 in. | 62 1/2 |

Less than carloads to destination east of the Mississippi River will be sold at delivered discounts for carload lowered by two points for lengths 22 ft. and under; longer lengths f.o.b. Pittsburgh. Usual extras to jobbers and boiler manufacturers.

Wire Rods and Wire.—Bessemer, open hearth and chain rods, \$27. Fence wire, Nos. 6 to 9 per 100 lb., terms 60 days, or 2 per cent. discount in 10 days, carload lots, to jobbers, annealed, \$1.50; galvanized, \$1.80. Carload lots, to retailers, annealed, \$1.55; galvanized, \$1.85. Galvanized bar wire, to jobbers, \$2; painted, \$1.70. Wire nails, to jobbers, \$1.70.

The following table gives the prices to retail merchants on wire in less than carloads, including the extras on Nos. 10 to 16, which are added to the base price:

| No. | 0 to 9 | 10 | 11 | 12 & 12 1/2 | 13 | 14 | 15 | 16 |
|------------|--------|--------|--------|-------------|--------|--------|--------|--------|
| Annealed | \$1.65 | \$1.70 | \$1.75 | \$1.80 | \$1.90 | \$2.00 | \$2.10 | \$2.20 |
| Galvanized | 1.95 | 2.00 | 2.05 | 2.10 | 2.20 | 2.30 | 2.70 | 2.80 |

Market and Stone Wire in Bundles, Discount from Standard List.

| Bright and Annealed: | |
|------------------------------|----------------------|
| 9 and coarser | .80 |
| 10 to 18 | .80 and 10 |
| 19 to 26 | .80 and 10 and 2 1/2 |
| 27 to 36 | .80 and 5 |
| Galvanized: | |
| 9 and coarser | .75 and 10 |
| 10 to 16 | .75 and 10 |
| 17 to 26 | .72 1/2 and 10 |
| 27 to 36 | .72 1/2 |
| Coppered or Liquor Finished: | |
| 9 and coarser | .75 and 10 |
| 10 to 26 | .75 and 10 |
| 27 to 36 | .70 and 10 and 5 |
| Tinned: | |
| 6 to 18 | .75 and 10 and 10 |

Pittsburgh

PITTSBURGH, PA., August 2, 1911.—(By Telephone.)

Pig Iron.—The local pig iron market has quieted down in demand, the only large inquiry out being that of the Westinghouse Electric & Mfg. Company, which is asking prices on 12,000 tons of Nos. 1, 2 and 3 foundry, comprising 2500 tons for its Cleveland works for the last four months of this year, 3500 tons for the same plant for the first three months of next year, 2500 tons for its Allegheny works for the last quarter of this year, and 3500 tons for the same works for the first three months of next year. A local consumer has bought 1500 to 2000 tons of Bessemer iron for delivery over the next three months at a price somewhat under \$15, Valley furnace. This iron, however, does not come from the Valley but from an outside furnace. We also note a sale of 300 tons of standard Bessemer iron made by a local dealer to a steel casting concern at about \$14.75, Valley furnace. The average price of Bessemer iron in July was nominally \$15, Valley, but the few sales made in that month were at prices ranging from \$14.75 or lower up to \$14.90, Valley furnace. The average price of basic iron in July was about \$13, Valley furnace. We quote as follows: Bessemer, \$15; basic, \$13 for early delivery, and \$13.25 for extended delivery; No. 2 foundry, \$13.50 to \$13.75; malleable, \$13.25 to \$13.50; gray forge, \$13, all at Valley furnace, the freight rate to Pittsburgh being 90c.

Steel.—Specifications for sheet and tin bars for August delivery are coming in very freely, and it is

believed that shipments of steel this month will be heavier than in July. The Carnegie Steel Company is operating this week 73 per cent. of its ingot capacity. We note a sale of 500 tons of open-hearth sheet bars in random lengths for August and September delivery at \$22, Pittsburgh. The Kokomo Steel & Wire Company, Kokomo, Ind., is reported to be in the market for 40,000 to 50,000 tons of rod billets for delivery over the next six months. We quote Bessemer and open-hearth billets, 4 x 4 in., and up to but not including 10 x 10 in., \$21, base, and sheet and tin bars in 30-ft. lengths, \$22; 1 1/2-in. billets, \$22; forging billets, \$26, base, usual extras for sizes and carbons—all prices being f.o.b. Pittsburgh or Youngstown district, with freight to destination added.

Structural Material.—The city of Pittsburgh is asking bids on 5000 to 7000 tons of steel for a new bridge to be built by the city across the Allegheny River at the Point. Bids must be in by August 11.

(By Mail.)

That conditions in the iron trade are steadily improving is shown by the continued expansion in operations among the leading steel companies. This week the Carnegie Steel Company is operating to between 73 and 75 per cent. of ingot capacity, its Youngstown, Duquesne and Bellaire plants being in full operation, while New Castle, South Sharon and Homestead are running nearly full. The Republic Iron & Steel Company is operating its Bessemer steel works at Youngstown to full capacity and is running six out of eight furnaces in its new open-hearth plant, and is now making bottoms for the other two which will be started in the latter part of this month; it has in blast three out of four of its blast furnaces at Youngstown, No. 2 having been blown out about July 1 for relining, and will be blown in again about August 15, while its Atlantic furnace at New Castle and Hall furnace at Sharon are also in blast. The Youngstown Sheet & Tube Company is said to be operating at upward of 90 per cent. of capacity, while the Jones & Laughlin Steel Company is running at heavier capacity than for some time and will probably blow in two of the four blast furnaces at Aliquippa this month. It is the belief in some quarters that when October is reached the leading steel companies will be operating to nearly normal capacity, and it is the expectation that the last quarter of this year will be the best of the year from every point of view. Consumers still continue to place orders largely to cover actual needs, and so far there is no disposition to buy ahead. Stocks all over the country are light, and this is shown by the fact that on nearly all orders placed requests are made for prompt shipment. In July the billet and rail sales department of the Carnegie Steel Company showed an increase in actual orders for billets, sheet bars and track material with the exception of rails, which showed a slight falling off as compared with June.

Ferromanganese.—A sale of two cars, or about 60 tons, of foreign ferro has been made at \$37, Baltimore, for shipment to a point outside the Pittsburgh district. A uniform price of \$37, Baltimore, is now being quoted on 80 per cent. foreign, the freight for delivery in the Pittsburgh district being \$1.95 a ton.

Ferrosilicon.—In spite of the absence of sales or new inquiry, prices on 50 per cent. ferrosilicon are much firmer, and it is quoted to-day at \$53 to \$54, Pittsburgh, some sellers refusing to shade the higher price. We quote blast-furnace ferrosilicon as follows: 10 per cent. \$23; 11 per cent. \$24 and 12 per cent. \$25, f.o.b. cars, Ashland and Jisco furnaces.

Muck Bar.—The market continues quiet but a sale is reported of 300 tons at about \$28.50, Pittsburgh. We quote best grades of muck bar made from all pig iron at \$28.50 to \$29 delivered in the Pittsburgh district.

Skelp.—No recent new sales are reported, the market being rather quiet. Prices are slightly lower and we now quote: Grooved steel skelp, 1.20c.; sheared steel skelp, 1.30c.; grooved iron skelp, 1.45c. to 1.55c. and sheared iron skelp, 1.65c. to 1.70c., all for delivery at consumers' mills in the Pittsburgh district.

Wire Rods.—There is a fair amount of new inquiry for rods but mostly for small lots. Specifications against contracts are reported as coming in a little better lately and shipments by the mills are heavier. We quote Bessemer, open hearth and chain rods at \$27, Pittsburgh, but on some recent sales it is reported this price was slightly shaded.

Steel Rails.—No important contracts for standard sections have been taken by the Carnegie Steel Com-

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pany recently but it has entered several fair-sized orders in the past week for export shipment, and has received new orders and specifications for about 2500 tons of light rails. The three Edgar Thomson rail mills at Bessemer, are reported as operating to about 50 per cent. of capacity. Prices on light rails are as follows: 12-lb., 1.25c.; 16, 20 and 25-lb., 1.21c. to 1.25c.; 30 and 35-lb., 1.20c., and 40 and 45-lb., 1.16c. These prices are f.o.b. at mill, plus freight, and are the minimum of the market in carload lots, small lots being sold at a little higher price. Standard sections are held at 1.25c. per lb. for Bessemer.

Plates.—The Philadelphia Company has placed an order with the Ritter-Conley Mfg. Company, of this city, for a large tank for storing natural gas, and the plates, about 3000 tons, will be rolled by the Carnegie Steel Company. No important orders for cars have been placed but a number of the important roads have inquiries out for a considerable number of cars as follows: Atlantic Coast Line 1000, Canadian Pacific 1000, Missouri Pacific 1500 to 2000, Illinois Central 1000 to 2000, Cincinnati, New Orleans & Texas 1000, and the Erie about 3800. The Pennsylvania and Baltimore & Ohio railroads are also reported to be figuring on the purchase of from 7000 to 8000 cars but have not yet sent out inquiries. The Carnegie Steel Company has received orders for about 11,000 tons of plates and structural shapes for two colliers to be built by the United States Government. We quote 7/8-in. and heavier plates at 1.35c., Pittsburgh, but in some cases 1.30c. is being named on narrow plates.

Structural Material.—The McClintic-Marshall Construction Company, of this city, is the lowest bidder on about 3400 tons of structural steel work for the Panama Canal, amounting to about \$300,000. It has also taken 200 tons for a new station for the Southern Pacific at Oakland, Cal., and 125 tons for a post office building in New Mexico. A good deal of new work is in sight and will likely be placed in the near future, including the Barr Building in St. Louis, about 11,000 tons, and the Hell Gate Bridge for the Pennsylvania and New Haven railroads, about 36,000 tons. New inquiries are more active and as the structural concerns are getting to be better filled up, slightly better prices are being realized. We quote beams and channels up to 15 in. at 1.35c., Pittsburgh.

Sheets.—Conditions in the sheet trade are being referred to as very satisfactory, several mills reporting that they are two or three weeks behind in deliveries on steel sheets and three to four weeks on iron sheets. New orders being placed are fairly heavy and specifications against contracts continue to come in freely. The American Sheet & Tin Plate Company and other leading sheet interests are steadily increasing operations, due to the heavier demand. Prices on black and roofing sheets are being fairly well maintained but on galvanized sheets are being shaded, notably at some Western points, about \$1 a ton. The full schedule of prices on black, galvanized and roofing sheets is given on a previous page.

Tin Plate.—While new orders for tin plate are light, specifications against contracts are coming in more freely than usual at this season, and more tin plate capacity is in operation at this time than for some months. The American Sheet & Tin Plate Company has recently started up 35 to 40 additional hot tin mills, and is now operating close to 80 per cent. of capacity. The independent tin plate mills are also increasing operations and as a whole are running from 80 to 85 per cent. of capacity. The tin plate mills expect to be able to run at the present rate of operations for several months at least. Prices are firm and we quote 100-lb. cokes at \$3.70 per base box, f.o.b. Pittsburgh.

Bars.—A very heavy tonnage of steel bars has been placed on contracts by the implement makers and wagon builders; in exceptional cases the most desirable of this tonnage was placed on the basis of 1.20c., Pittsburgh. The leading steel bar makers—the Carnegie, Jones & Laughlin and Republic companies—are now reported as being pretty well booked up and are not disposed to take on additional tonnage except at the full price of 1.25c. Several of the leading steel bar makers report their order books so well filled up and specifications coming in so freely that they are getting slightly behind in deliveries. The market on iron bars continues quiet, new orders being for small lots and specifications against contracts not very satisfactory. We quote steel bars at 1.25c., with the possibility that 1.20c. might be done by one or two makers on very desirable

contracts. We quote common iron bars at 1.25c., Pittsburgh.

Hoops and Bands.—A material increase in new demand for both hoops and bands is reported, and orders are usually accompanied by the request for prompt shipment. The mills rolling hoops and cotton ties are now operating at fuller capacity than for some months. We quote steel hoops at 1.40c. and bands at 1.25c., extras on the latter as per the steel bar card.

Merchant Steel.—A slight increase in new orders is reported and specifications against contracts are coming in a little better. One leading maker reports that its shipments in July were slightly heavier than in June. Regular prices, which however have been more or less shaded for some time, are as follows: Iron finished tire, 1/2 x 1/2 in. and heavier, 1.40c., base; under these sizes, 1.55c.; planished tire, 1.60c.; channel tire, 1.80c., base; toe calk, 1.90c.; flat sleigh shoe, 1.55c.; concave or convex, 1.75c.; cutter shoes, tapered or bent, 2.25c.; spring steel, 2c.; machinery steel, smooth finish, 1.90c.

Rivets.—Several makers report that new orders are showing an increase and that consumers are specifying more freely on contracts placed some time ago. We continue to quote structural rivets at 1.70c. to 1.75c. and boiler rivets at 1.80c. to 1.85c., but in very exceptional cases and for desirable business these prices are slightly shaded.

Wire Products.—The new demand for wire and wire nails at present is very dull, being only for small lots to cover actual needs. The fall trade is expected to open up about September 15. It is stated that the recent flurry in prices, during which a good many contracts for wire nails were entered at \$1.65 per keg, is about over and that regular prices are now being fairly well maintained. We quote: Galvanized barb wire, \$2 per 100 lb.; painted, \$1.70; annealed fence wire, \$1.50; galvanized, \$1.80; wire nails, \$1.70, and cut nails, \$1.60, all f.o.b. Pittsburgh, with full freight added to point of delivery.

Spelter.—The market is firm this week, and we quote prime grades of Western at 5.65c., East St. Louis, equal to 5.77 1/2c., Pittsburgh. A sale of 100 tons for August and September is reported at this price.

Merchant Pipe.—Some contracts for gas lines have been placed and two or three good lines are in the market. The Ohio Fuel Supply Company has placed 26 1/2 miles of 16 in. with the National Tube Company and Spang, Chalfant & Co.; about 14 miles of 8, 10 and 12 in. for delivery at Ashland, Ohio, with an Ohio mill, and about 19 miles of 3 to 6 in. with other mills. The Natrona Pipe Line Company is reported to have placed 35 miles of 16 in. for delivery at Casper, Wyo., with a local mill, and the Southwestern Gas Company of Oklahoma is reported in the market for 60 to 80 miles of 12 in. The new demand for merchant pipe during July was as large as expected, and leading pipe mills are operating to greater capacity than for some time. Prices are regarded as being well maintained, but on several large lines placed recently they are said to have been slightly shaded. Regular discounts in effect on iron and steel pipe are given on a previous page.

Boiler Tubes.—This trade continues in a very unsatisfactory condition, prices being low and new demand dull. Some fairly large contracts for boiler tubes were placed by a number of railroads a month or two ago, but specifications against these contracts are coming in quite slowly. Regular discounts on boiler tubes are purely nominal and are given on a previous page.

Coke.—A slight improvement in new demand and also in prices on both furnace and foundry coke is reported. Two leading Eastern steel companies have recently increased their blast furnace operations and are buying some furnace coke in the open market. We note a sale of 6000 tons of blast furnace coke for August delivery at \$1.50 and 5000 tons for August delivery at \$1.55 per net ton at oven. A contract for blast furnace coke involving 6000 to 8000 tons is also reported at \$1.80, the coke being of exceptionally fine quality. Two or three large consumers of foundry coke have recently closed for their requirements, aggregating 15,000 to 18,000 tons, at \$2.10 to \$2.15 per net ton at oven for strictly 72-hr. foundry coke. We quote standard makes of furnace coke for prompt shipment at 1.45 to \$1.50 and for the remainder of the year \$1.60 to \$1.65. We quote 72-hr. foundry coke for prompt shipment at \$1.85 to \$2, and on contracts from \$2 up to \$2.50, the latter price being for several makes of foundry coke that always command the very highest prices. The output of coke in the Upper and Lower Connellsville regions last week was 282,663 tons, an increase over the previous week of about 12,000 tons.

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Iron and Steel Scrap.—Consumers of heavy steel scrap, borings and turnings now seem more anxious to buy at present prices than dealers are to sell. It is the firm belief of scrap dealers that prices will be higher in the near future, and they are not disposed to part with their stock unless they obtain good prices for it. We note sales in the past week of 6000 to 8000 tons of heavy steel scrap for western Pennsylvania and eastern Ohio delivery, mostly at \$13.25 per gross ton. On any large tonnage of heavy steel scrap for delivery ahead most dealers are quoting \$13.50 and in some cases higher. The tone of the whole scrap market is firmer and if the increased operations among steel mills continue higher prices are expected. Dealers quote, per gross ton, f.o.b. Pittsburgh, as follows:

| | |
|--|--------------------|
| Heavy steel scrap, Steubenville, Follansbee, Sharon, Monessen and Pittsburgh delivery. | \$13.25 to \$13.50 |
| No. 1 foundry cast..... | 13.25 to 13.50 |
| No. 2 foundry cast..... | 12.75 to 13.00 |
| Bundled sheet scrap, f.o.b. consumers' mill, Pittsburgh district..... | 11.50 to 12.00 |
| Re-rolling rails, Newark and Cambridge, Ohio, Cumberland, Md., and Franklin, Pa. | 13.75 to 14.00 |
| No. 1 railroad malleable stock..... | 12.50 to 12.75 |
| Grate bars..... | 10.75 to 11.00 |
| Low phosphorus melting stock..... | 16.00 to 16.25 |
| Iron car axles..... | 23.00 to 23.50 |
| Steel car axles..... | 17.50 to 18.00 |
| Locomotive axles..... | 23.00 |
| No. 1 busheling scrap..... | 12.00 to 12.25 |
| No. 2 busheling scrap..... | 8.50 to 8.75 |
| Old car wheels..... | 13.50 to 13.75 |
| Sheet bar crop ends..... | 15.50 to 15.75 |
| Cast iron borings..... | 9.00 to 9.25 |
| Machine shop turnings..... | 9.25 to 9.50 |
| Old iron rails..... | 15.00 to 15.25 |
| No. 1 wrought scrap..... | 13.50 to 14.00 |
| Heavy steel axle turnings..... | 10.00 to 10.25 |
| Stove plate..... | 10.50 to 10.75 |

*These prices are f.o.b. cars at consumers' mills in the Pittsburgh district.

Chicago

CHICAGO, ILL., Aug. 2, 1911.—(By Telegraph.)

Pig Iron.—During the month of July this market witnessed a liberal buying of pig iron. At the present rate of consumption melters generally are supplied well into the fourth quarter, but if the signs of increasing melt forecast a return to normal business more buying for third quarter shipment would not be unlikely. As a result of the extensive movement the Alabama pig iron interests have in the last few days of the month assumed a distinctly firmer attitude on last half delivery, and \$10.50 is the asked price. The bulk of the iron bought even in the last week was placed on the basis of \$10, Birmingham, for No. 2, and buyers have hardly acknowledged the advance as yet with actual purchases. A few Southern furnaces will still take \$10 for immediate shipment. Northern irons do not present quite so strong a front. In recognition of the improved situation, however, melters are inquiring actively, one car builder being in the market for a maximum of 10,000 tons of malleable. The tonnage of malleable bought has been an important feature of the market, and evidences seem to indicate that developments will not enhance the advantage of the buyers' position. Northern iron prices remain unchanged. We quote for Chicago delivery, except on local irons, which are f.o.b. furnace, the following prices:

| | |
|--|--------------------|
| Lake Superior charcoal..... | \$16.50 to \$17.00 |
| Northern coke foundry, No. 1..... | 15.00 to 15.50 |
| Northern coke foundry, No. 2..... | 14.50 to 15.00 |
| Northern coke foundry, No. 3..... | 14.25 to 14.50 |
| Northern Scotch, No. 1..... | 16.00 |
| Southern coke, No. 1 foundry and No. 1 soft | 14.85 to 15.10 |
| Southern coke, No. 2 foundry and No. 2 soft | 14.35 to 14.60 |
| Southern coke, No. 3..... | 14.10 to 14.35 |
| Southern coke, No. 4..... | 13.85 to 14.10 |
| Southern gray forge..... | 13.60 to 13.85 |
| Southern mottled..... | 13.60 to 13.85 |
| Malleable Bessemer..... | 15.00 |
| Standard Bessemer..... | 12.40 |
| Basic..... | 15.50 |
| Jackson Co. and Kentucky silvery, 6 per cent..... | 17.90 |
| Jackson Co. and Kentucky silvery, 8 per cent..... | 18.90 |
| Jackson Co. and Kentucky silvery, 10 per cent..... | 19.90 |

(By Mail.)

An indication of the continually growing strength of the finished steel market may be found in the fact that the local mills of the Steel Corporation are booking a practically normal tonnage. This is applicable especially to structural shapes, bars and plates. The rail tonnage placed the past week was not important, but intimations point to important contracts under consideration. Prices of finished materials show greater firmness, with the exception of sheets, in which some concessions are being forced. The unsatisfactory con-

dition of the bar iron trade remains in statu quo and the price of 1.20c. continues to be a mean between high and low quotations. Contracts for fabricated steel placed during the week aggregated close to 5000 tons, of which the principal item was the city waterway bridges at Tacoma, Wash., requiring 3210 tons. Prices for fabricated structural material show a wide variation with rather low limits for desirable work. The market for old material is somewhat firmer in sympathy with the strength shown in Eastern and Southwestern markets, as well as in response to the improvement in finished lines.

Rails and Track Supplies.—The railroads are reported to be specifying liberally against their rail contracts. A number of orders for small lots of rails are also noted among the current transactions. Indications are that certain liberal contracts still remain unplaced, but which may be expected to go to the local mills. Track fastenings are being taken out freely. The light rail business is quiet and prices are irregular. We quote standard railroad spikes at 1.65c. to 1.75c., base; track bolts with square nuts, 2.10c. to 2.20c., base, all in carload lots, Chicago; standard section Bessemer rails, 1.28c.; open hearth, 1.34c.; light rails, 40 to 45 lb., 1.16c. to 1.20½c.; 30 to 35 lb., 1.19½c. to 1.24c.; 16, 20 and 25 lb., 1.20½c. to 1.25c.; 12 lb., 1.25c. to 1.30½c.; angle bars, 1.50c. to 1.60c., Chicago.

Structural Material.—Tenders are being asked for the structural steel required for the new Field Museum, about 8000 tons. The new Continental & Commercial National Bank Building plans, which are estimated to call for 15,000 tons of steel, are still in the hands of the architects, D. H. Burnham & Co., but are expected to be submitted for figures in the very near future. A number of fabricating contracts were placed during the week, including a battery of coke ovens by H. Koppers, requiring 350 tons; a machine shop addition to the plant of the M. Rumely Company, La Porte, Ind., 250 tons, let to the Kenwood Bridge Company, which company also took the contract for the addition to the Quincy, Ill., plant of the Otis Elevator Company, 200 tons. The largest item of the week was 3210 tons for city waterway bridges at Tacoma, Wash., taken by the American Bridge Company. This company was also awarded the 250 tons for the San Diego, Cal., post-office. The Milwaukee Bridge Company was low bidder on 175 tons for a Denver, Col., bridge, and the Judson Mfg. Company, Sacramento, Cal., will fabricate 150 tons for a bridge in that city. While reports have it that the Kansas City Terminal contract is likely to be placed either with the Noelke-Richards Company, Indianapolis, or the Geo. A. Fuller Company, general contractor, it is believed that the actual award has not been made. The tonnage is close to 10,000. Competition continues very keen for desirable work, and to gain this business some low prices are made. It is understood that Canadian bridge inquiries pending have not been closed. Notwithstanding inferences that prices on plain material have been shaded in connection with some of the low bids for fabricated steel, we continue to quote plain material from mill at 1.53c. to 1.58c. and from store, 1.75c., Chicago.

Plates.—Plate tonnage is being booked in practically normal volume in this territory. Specifications covering bridge girders are largely responsible for this and are augmented by an increasing tonnage of car steel. Business of this kind bids fair to show a decided increase in the near future with contracts pending, previously mentioned and otherwise, including over 4000 cars for the Missouri Pacific, nearly as many for the Erie, 2000 for the Illinois Central, 1500 for the Chicago, Burlington & Quincy now in the shops of the American Car & Foundry Company, 300 from the Havana Central and 150 for the Manufacturers' Railway of St. Louis. The Llewellyn Iron Works, Los Angeles, will fabricate 104 tons of tank plate for the Copper River & Northwestern Railway, Katella, Alaska. Chicago quotations for mill shipment are 1.53c. to 1.59c. and from store, 1.75c.

Sheets.—Tonages of sheets booked during the week show increasing volume, and include some buying by jobbers. It is still difficult, however, for makers to avoid some concessions from ruling prices but shading is seldom in excess of 50 cents a ton, even for very desirable business. We continue to quote Chicago prices as follows: Carload lots, from mill: No. 28 black sheets, 2.18c.; No. 28 galvanized, 3.18c.; No. 10 blue annealed, 1.68c. Prices from store, Chicago, are: No. 10, 1.95c. to 2.05c.; No. 12, 2.00c. to 2.10c.; No. 28 black, 2.45c. to 2.55c.; No. 28 galvanized, 3.45c. to 3.55c.

Bars.—The steel bar situation is assuming a set-

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tled and increasingly satisfactory aspect in most quarters. Specifications on recently placed contracts are beginning to come in. Open market orders are still scattering, and mills not having large contracts from which to obtain an aggregate tonnage of specifications find their rolling schedules more or less cut up. There seems to be less occasion for shading of steel bar prices except in specific instances for immediate shipment and we quote as follows, f.o.b. Chicago: Soft steel bars, 1.43c.; bar iron, 1.20c. to 1.25c.; hard steel bars, rolled from old rails, 1.20c. to 1.25c. From store, soft steel bars, 1.70c. to 1.80c., Chicago.

Wire Products.—Such activity as does exist in wire products gives evidence of greater firmness based on improved crop prospects. Jobbers are evincing a slightly more liberal disposition in specifying for barb wire, and wire nail sales show small gains. Fence wire trade is satisfactory considering the prolonged spring buying. Indications of an early fall are expected to hasten the return of trade volume. Jobbers' car-load prices, which are quoted to manufacturing buyers, are as follows: Plain wire, No. 9 and coarser, base, 1.68c.; wire nails, 1.88c.; painted barb wire, 1.88c.; galvanized, 2.18c.; polished staples, 1.88c.; galvanized, 2.18c., all Chicago.

Cast Iron Pipe.—There were no lettings of importance reported as placed during the past week. Minneapolis is still holding its contract for 3000 tons open. The number of small orders continues to aggregate a liberal tonnage. We quote as follows, per net ton, Chicago: Water pipe, 4 in., \$25.50; 6 to 12 in., \$24.50; 16 in. and up, \$24, with \$1 extra for gas pipe.

Old Material.—The scrap market displays a firmer and more hopeful tone as a result of the improvement in the pig iron and steel markets. Iron scrap, however, is in little demand. Reflecting the improved situation in the Eastern scrap market, heavy melting steel is quoted at an advance of 25c. a ton and old steel rails are bringing slightly higher prices. Cast borings are also firmer. A recent sale of 2000 car wheels by the Chicago, Burlington & Quincy Railroad brought a price said to be \$12.75, f.o.b. connecting line. Railroad offerings of scrap are being absorbed promptly and at prices generally above the market quotations. Lists now awaiting offers include about 3000 tons from the Chicago & Northwestern and a tonnage, not specified, from the Erie. We quote below for delivery to buyer's works, Chicago and vicinity, all freight and transfer charges paid, per gross ton, as follows:

| | | |
|--|-------|--------------------|
| Old iron rails | ..... | \$14.00 to \$14.50 |
| Old steel rails, rerolling | ..... | 12.25 to 12.50 |
| Old steel rails, less than 3 ft. | ..... | 11.25 to 11.75 |
| Relaying rails, standard sections, subject to inspection | ..... | 24.00 |
| Old car wheels | ..... | 12.75 to 13.25 |
| Heavy melting steel scrap | ..... | 10.75 to 11.00 |
| Frogs, switches and guards, cut apart | ..... | 10.50 to 11.00 |
| Shoveling steel | ..... | 10.00 to 10.50 |
| Steel axle turnings | ..... | 8.50 to 9.00 |

The following quotations are per net ton:

| | | |
|--|-------|--------------------|
| Iron angles and splice bars | ..... | \$12.50 to \$13.00 |
| Iron arch bars and transoms | ..... | 13.75 to 14.25 |
| Steel angle bars | ..... | 10.25 to 10.75 |
| Iron car axles | ..... | 18.00 to 18.50 |
| Steel car axles | ..... | 16.00 to 16.50 |
| No. 1 railroad wrought | ..... | 11.00 to 11.25 |
| No. 2 railroad wrought | ..... | 10.00 to 10.50 |
| Steel knuckles and couplers | ..... | 9.25 to 9.75 |
| Locomotive tires, smooth | ..... | 15.00 to 15.50 |
| Machine shop turnings | ..... | 6.25 to 6.75 |
| Cast and mixed borings | ..... | 5.25 to 5.75 |
| No. 1 busheling | ..... | 8.75 to 9.25 |
| No. 2 busheling | ..... | 6.75 to 7.25 |
| No. 1 boilers, cut to sheets and rings | ..... | 7.50 to 8.00 |
| Boiler punchings | ..... | 12.00 to 12.50 |
| No. 1 cast scrap | ..... | 10.25 to 10.75 |
| Stove plate and light cast scrap | ..... | 9.00 to 9.50 |
| Railroad malleable | ..... | 10.00 to 10.50 |
| Agricultural malleable | ..... | 9.25 to 9.75 |
| Pipes and flues | ..... | 8.00 to 8.50 |

Philadelphia

PHILADELPHIA, PA., Aug. 1, 1911.

No large buying has been reported in either crude or finished products, but the total for the week is fairly satisfactory. The pig iron market continues to broaden and prices, though unchanged, have a decidedly stronger tone. In finished products the market still shows irregularity. While a fair volume of business is being done, mills have in instances shown a smaller relative output for July than was generally anticipated; in other instances moderate gains are reported. Rumors of price uncertainties in some lines of rolled products have a tendency to make consumers hesitate in placing orders. The trade is more encouraged with the railroad situation. Sellers in this district will share in the 20,000-ton order for steel rails placed by the Southern

Railway. Some steel car orders have been placed and more business of this character is in sight. Less business is reported by sheet and billet makers. Refined iron bars, while not active, are firm. Steel bars are fairly active, with the leading producers adhering to old quotations. The old material market has been quiet, with prices firm.

Iron Ore.—The market drags; buyers are pretty well covered for early requirements and await further developments before coming into the market. Importations at this port for the week ended July 29 include 11,548 tons of Spanish and 6559 tons of Swedish ore.

Pig Iron.—Transactions, while confined to moderate sized lots, principally foundry grades, have aggregated a very fair total and indicate that the volume of business is gradually becoming larger. In a number of instances consumers are reported to be urging delivery on iron already purchased, which is taken to indicate that, notwithstanding the increased buying, stocks in foundry yards are still relatively low. Sellers feel that their position is gradually becoming stronger, and while there has been no advance in prices lower quotations available a few weeks ago in some particular instances have practically disappeared. There is a fair amount of inquiry for the higher grades of foundry iron for delivery ranging from prompt to the remainder of the year. In some instances the demand for No. 2 plain is better than the supply. Cast iron pipe makers in this district are quietly looking around for low grade iron; one consumer has an old inquiry for several thousand tons still before the trade, while another would likely take a round lot if sellers would meet ideas as to prices, but at the present stage of the market producers will not make concessions. Sales of eastern Pennsylvania foundry grades have been comparatively good in quantities running from 50 to 250 tons at both \$15 and \$15.25 for standard analysis No. 2 X foundry, with delivery covering varying portions of the next five months. The movement in Virginia foundry grades has not been quite so active, the largest transaction in this district being a lot of 500 tons for shipment over the remainder of the year at \$12.50 at furnace. Sales of moderate lots at \$12.25 for both prompt and near future shipment are also reported. Price shading recently reported in Virginia iron appears less pronounced. Less interest is being taken in the higher Southern grades of foundry iron, with \$10.50, Birmingham, asked as a base price for No. 2 foundry. Southern iron is less of a factor in this territory. Forge iron shows but little activity and prices are pretty generally accepted at \$14, furnace, or \$14.50 delivered to this immediate district. The demand for steel-making grades continues light. Basic is practically on a \$14.50, delivered, basis as a minimum, with both inquiry and offerings light. Low phosphorus iron has been quiet, prices ranging from \$20 to \$20.50, delivered here, according to analysis. The following range of prices is named for standard brands, delivered in buyers' yards in this immediate district:

| | | |
|--------------------------------------|-------|--------------------|
| Eastern Pennsylvania No. 2 X foundry | ..... | \$15.00 to \$15.25 |
| Eastern Pennsylvania No. 2 plain | ..... | 14.75 to 15.00 |
| Virginia foundry | ..... | 15.00 to 15.25 |
| Gray forge | ..... | 14.50 |
| Basic | ..... | 14.50 to 15.00 |
| Standard low phosphorus | ..... | 20.00 to 20.50 |

Ferromanganese.—Sellers in this district are now all holding flatly at \$37, Baltimore, for 80 per cent. ferro, but the market has not been tested, there being no inquiry sufficient to arouse interest in the market in this territory.

Billets.—Bookings the past week have been a trifle smaller. There is the same general run of small orders, but inquiries recently before the trade for round lots of rolling billets have failed to develop into contracts. Recent quotations appear to be fully maintained, makers naming \$23.40 for rolling billets and \$28.40 for ordinary forging billets, delivered in this territory.

Plates.—Orders for delivery in July showed a decline from the previous rate and some producers averaged not much over 50 per cent. of normal capacity. As to the future, plate makers are optimistic; a large amount of business is in sight, but it develops slowly. It is reported that the contract for 300 tons of plates for government colliers, as well as smaller orders for government tugs, has been placed, but the business went to Western mills. While rumors of shading continue to be heard, and may be the cause of quieter conditions, it is generally contended that the recent level of 1.50c. for ordinary plates, delivered here, is being firmly maintained.

Structural Material.—The placing of the contract for

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the structural work, 1600 tons, for the addition to the Du Pont Building, Wilmington, Del., with the Cambria Steel Company is announced. No other large orders have been placed, although several are in sight. Plans for the new Stock Exchange Building have not yet been completed. Several small contracts for bridges have been placed and fabricators have taken some small building work. Sharp competition and low prices for fabricated work continue to be reported. A fairly good demand exists for plain shapes and mills have been able to maintain an average output, representing about 60 per cent. during July. The Pencoyd plant of the leading interest has been operating at practically full capacity. Prices of plain shapes are firm at 1.50c. minimum, delivered in this territory.

Sheets.—A falling off in the demand is reported by Eastern mills, due perhaps to some extent to weak prices in the West. Plants are operating slightly under full capacity. Makers in this district are maintaining recent quotations, which range as follows f.o.b. Eastern mill: Nos. 18 to 20, 2.30c.; Nos. 22 to 24, 2.40c.; Nos. 25 to 26, 2.50c.; No. 27, 2.60c.; No. 28, 2.80c.

Bars.—Producers of refined iron bars have been quietly testing the situation, with a view of slightly advancing prices, but so far the recent quotation of 1.20c. at Eastern mill stands. No concessions appear available. The demand has not been active and such business as is offered usually goes at the above base, which represents 1.27½c. to 1.32½c., delivered here. Considerable talk of low prices for steel bars is noted, but Eastern sellers contend that they have not shaded 1.40c., delivered in this district.

Coke.—Some little contracting in foundry coke, covering upward of 50 to 100 cars for extended delivery, at \$2 to \$2.30 at oven, is reported, but the bulk of the buying is in small lots. Furnaces still confine their purchases to lots for prompt delivery, which can be had at prices ranging from \$1.40 to \$1.50 at oven. The following range of prices, per net ton, is named for delivery in this vicinity:

| | |
|---------------------------------|------------------|
| Connellsville furnace coke..... | \$3.65 to \$3.90 |
| Foundry coke | 4.15 to 4.60 |
| Mountain furnace coke..... | 3.25 to 3.50 |
| Foundry coke | 3.75 to 4.20 |

Old Material.—There has been no pronounced movement. Consumers occasionally come into the market for small lots, frequently paying higher prices, but the general situation shows a waiting tendency. No. 1 yard heavy melting steel has been sold at \$13 to \$13.25, while No. 1 railroad heavy melting steel has been sold at \$13.50, in one instance 1000 tons being taken. Purchases made direct by some consumers are reported at \$13.50, delivered. The trade is awaiting the railroad lists, bids against which will, it is expected, show which way the market will go. No. 1 railroad wrought shows an advance of 25c. on moderate purchases. Turnings and borings are in better demand, and while no higher in price are decidedly strong. Scrap merchants are optimistic in their expressions regarding the future and in the majority of instances are holding for higher prices. The following range of prices about represents the market for early deliveries in buyers' yards, eastern Pennsylvania and nearby points, carrying a freight rate from Philadelphia varying from 35c. to \$1.35 per gross ton:

| | |
|--|--------------------|
| No. 1 railroad heavy melting steel scrap.... | \$13.50 to \$18.75 |
| No. 1 yard heavy melting steel scrap..... | 13.00 to 13.25 |
| Old steel rails, rerolling (nominal)..... | 14.25 to 14.75 |
| Low phosphorus heavy melting steel scrap.. | 16.75 to 17.25 |
| Old steel axles (nominal)..... | 19.50 to 20.00 |
| Old iron axles | 24.50 to 25.00 |
| Old iron rails | 17.50 to 18.00 |
| Old car wheels (nominal)..... | 13.00 to 13.50 |
| No. 1 railroad wrought..... | 15.75 to 16.25 |
| Wrought iron pipe | 13.00 to 13.50 |
| No. 1 forge fire | 11.00 to 11.50 |
| No. 2 light iron (nominal)..... | 6.75 to 7.25 |
| Wrought turnings | 9.50 to 10.00 |
| Cast borings | 9.00 to 9.50 |
| Machinery cast | 13.25 to 13.75 |
| Railroad malleable (nominal)..... | 11.50 to 12.00 |
| Grate bars, railroad | 10.00 to 10.50 |
| Stove plate | 10.50 to 11.00 |

Cleveland

CLEVELAND, OHIO, Aug. 1, 1911.

Iron Ore.—The aggregate of sales having become almost inconsequential and immediate prospects not being very promising, Cleveland vesselmen declare that an early closing of the lake season appears now inevitable. Whereas blast furnacemen had been confidently expected to come into the market the past two weeks,

to-day finds shippers ahead of their schedules and the movement from mines exceeding the present demand. The next two weeks will decide definitely the length of the season. We quote prices as follows: Old range Bessemer, \$4.50; Mesaba Bessemer, \$4.25; old range non-Bessemer, \$3.70; Mesaba non-Bessemer, \$3.50.

Coke.—One local blast furnace is closing on its remainder of the year requirements at about the market, but this is the only transaction in furnace coke recorded here for some days. Foundries have pretty well covered in this territory and inquiries are small and for immediate needs. We quote standard Connellsville furnace coke at \$1.40 to \$1.50 per net ton at oven, for spot shipment, and \$1.65 to \$1.75 for remainder of the year. Connellsville 72-hr. foundry coke is held at \$1.80 to \$2.15 at oven for prompt shipment and \$2.15 to \$2.40 for remainder of the year.

Pig Iron.—The slight improvement noted in the pig iron market recently has abated somewhat and few sales have come to the surface in the past week. Foundries have been covering in small quantities for immediate needs, few in this entire district buying ahead in anything like noticeable quantities. Despite the low price of Southern grades, the aggregate tonnage of Southern iron that has come into the Cleveland territory in the last six months has been surprisingly small, and in this respect the present era of low prices has differed from every other like period for some years. Much of this difference, undoubtedly, is due to the number of merchant furnaces now operating here, thus enabling attractive prices on the various grades of Northern iron to be made right in this city or its immediate vicinity. The tentative inquiry from a cast iron pipe works here has not brought about a sale. The Valley quotation on basic has hardened to \$13 flat on both prompt and remainder of the year business, while No. 2 foundry appears to have settled to the Valley basis of \$13.50. However, for Cleveland delivery, we quote as follows for prompt shipment and for last half:

| | |
|--|------------------|
| Bessemer | \$15.90 |
| Basic | \$13.75 to 14.00 |
| Northern foundry No. 2..... | 13.50 to 13.75 |
| Gray forge | 13.25 |
| Southern foundry No. 2..... | 14.35 to 14.60 |
| Jackson Co. silvery, 8 per cent. silicon.... | 17.50 to 17.75 |

Old Material.—Although the local market has shown a firmer tendency in some grades, yet the general list is about unchanged. The buyers of heavy melting steel are purchasing in such a manner as to discourage any notion of a runaway market, it being possible to obtain outside material at slight advances over city quotations. Turnings are in somewhat better demand but the quantity available is not large. Dealers' prices, per gross ton, f.o.b. Cleveland, are as follows:

| | |
|--------------------------------------|--------------------|
| Old steel rails, rerolling..... | \$13.00 to \$13.50 |
| Old iron rails..... | 15.00 to 15.50 |
| Steel car axles..... | 17.50 to 18.00 |
| Heavy melting steel..... | 11.75 to 12.25 |
| Old car wheels..... | 12.00 to 12.25 |
| Relaying rails, 50 lb. and over..... | 22.50 to 24.50 |
| Agricultural malleable | 10.75 to 11.25 |
| Railroad malleable | 12.25 to 12.75 |
| Light bundled sheet scrap..... | 10.00 to 10.50 |

The following prices are per net ton, f.o.b. Cleveland:

| | |
|--|--------------------|
| Iron car axles | \$21.00 to \$21.50 |
| Cast borings | 6.75 to 7.00 |
| Iron and steel turnings and drillings..... | 7.00 to 7.50 |
| Steel axle turnings..... | 8.00 to 8.50 |
| No. 1 busheling..... | 11.00 to 11.50 |
| No. 1 railroad wrought..... | 11.75 to 12.25 |
| No. 1 cast..... | 11.25 to 11.75 |
| Stove plate | 9.50 to 10.00 |
| Bundled tin scrap..... | 11.00 to 11.50 |

Finished Iron and Steel.—More satisfaction is expressed this week over the general iron and steel trade conditions than in some months. New business in small tonnages is coming out from day to day and the daily run of specifications is reported improving. In fact, one of the difficulties that local mill agents are facing with considerably increasing disappointment is the inability of mills to make deliveries. This is especially true of bars and light structural material. Regular prices appear to be maintained for the most part on structural material, but some 1.20c. steel bar business is being taken from desirable customers; yet right alongside the 1.20c. specifications come along those taken at 1.25c. About the only large tonnage of steel bars under active negotiations aggregates 800 tons and is for delivery at Toledo. Local mills have hardened slightly their price for bar iron, the general quotation being more nearly 1.25c. than the 1.20c. formerly prevalent. The Empire mill will resume operating to-

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day but the Union mill is still idle. The steel sheet market is still weak on some grades. Steel bids for the proposed East Side market house are still being considered by the projectors. It is now said that the reason why all bids for the steel were rejected by the City Hall Commission was that none of them came within the appropriation. New business in quantity is slow in coming out. We quote iron bars at 1.25c. to 1.30c., at mill.

Cincinnati

CINCINNATI, OHIO, Aug. 2, 1911.—(By Telegraph.)

Pig Iron.—The inquiry is light, but there is considerable buying to cover fourth quarter requirements. The sales now being made are principally the result of personal solicitation by salesmen. In this immediate vicinity foundries have a sufficient stock to cover nearby needs and it is probable that much of the iron now contracted for is to take advantage of the present low price for use the first part of next year. Furnacemen are beginning to realize the actual situation, in that the production of foundry iron especially is now below consumption, and there is an effort to advance quotations. Several Southern producers are asking \$10.50 at furnace for No. 2 foundry, and, while there is considerable \$10 iron still obtainable for delivery through the remainder of the year, the Southern situation shows considerably more strength. Recent sales include 500 tons each of Southern Nos. 1 and 2 foundry for last quarter shipment at \$10.75 and \$10.25, Birmingham, respectively, for a central Western melter. Indiana manufacturers have contributed a few orders for No. 2 foundry for last half delivery based on \$10, Birmingham. A nearby consumer took 500 tons of Southern No. 4 foundry for August shipment at \$9 at furnace. Illinois territory furnished an order for approximately 2000 tons each of malleable and Southern No. 2 foundry at prevailing minimum quotations, and a firm in the Pittsburgh district bought through a local office 500 tons of Southern charcoal for last half delivery at \$22.50, Birmingham. For the same shipment a St. Louis consumer took 1000 tons of malleable at a price slightly below \$13.25, Ironton. Basic is active, although following foundry grades, and the Southern basic prices are firmer. No 1912 quotations are being made on any grades. Based on freight rates at \$3.25 from Birmingham and \$1.20 from Ironton we quote, f.o.b. Cincinnati, as follows:

| | |
|---|--------------------|
| Southern coke, No. 1 foundry and 1 soft.. | \$13.75 to \$14.00 |
| Southern coke, No. 2 foundry and 2 soft.. | 13.25 to 13.50 |
| Southern coke, No. 3 foundry..... | 12.75 to 13.00 |
| Southern coke, No. 4 foundry..... | 12.50 to 12.75 |
| Southern gray forge..... | 12.50 to 12.75 |
| Ohio silvery, 8 per cent. silicon..... | 16.95 to 17.20 |
| Lake Superior coke, No. 1..... | 14.70 to 14.95 |
| Lake Superior coke, No. 2..... | 14.20 to 14.45 |
| Lake Superior coke, No. 3..... | 13.70 to 13.95 |
| Basic, Northern..... | 14.45 to 14.70 |
| Standard Southern car wheel..... | 25.50 to 25.75 |
| Lake Superior car wheel..... | 19.00 |

(By Mail.)

Coke.—A few orders are reported for Connellsville foundry coke, and there has also been some light contracting on Wise County grades. Furnace coke, so far as new business is concerned, is stagnant, and no immediate improvement is anticipated. In both the Pocahontas and Wise County fields a tendency has been shown to take on business a shade below market quotations, and 72-hr. coke is quotable all the way from \$2 to \$2.35 per net ton at oven for any shipment this year, with some producers willing to take on 12 months' contracts around these figures. For prompt shipment a few brands are available at \$1.90. Furnace coke in all three fields is unchanged at \$1.40 to \$1.50 for nearby movement, with a premium generally asked of about 15c. on future contracts. Both furnace and foundry coke show more firmness in the Connellsville district than in any other field.

Finished Material.—Diligent inquiry fails to reveal any steel bar business being taken on in this territory below 1.25c. Pittsburgh basis, though there are many rumors afloat of this price being shaded. On authority that is considered reliable it is reported that a number of offers, for small tonnages, at 1.20c. have been turned down. Structural material continues in fair demand, but sheets are not so active. Hoops are firm at 1.40c. base at mill, and so far as can be ascertained here bands are not obtainable below 1.25c. The local warehouse price on steel bars is unchanged at 1.70c. and on structural material 1.80c.

Old Material.—Railroad offerings are a trifle heav-

ier, but buyers are generally indifferent about taking on any large tonnages just now. The demand from the rolling mills shows some improvement. Borings and turnings are scarcer than usual, but there has been no change in previous quotations. The approximate prices paid by buyers for delivery in their yards, southern Ohio and Cincinnati, are as follows:

| | |
|--|--------------------|
| No. 1, railroad wrought, net ton..... | \$10.50 to \$11.00 |
| Casting borings, net ton..... | 4.50 to 5.00 |
| Steel turnings, net ton..... | 5.50 to 6.00 |
| No. 1 cast scrap, net ton..... | 9.50 to 10.00 |
| Burnt scrap, net ton..... | 6.50 to 7.00 |
| Old iron axles, net ton..... | 16.50 to 17.00 |
| Bundled sheet scrap, gross ton..... | 7.25 to 8.25 |
| Old iron rails, gross ton..... | 13.50 to 14.00 |
| Relaying rails, 50 lb. and up, gross ton.... | 21.00 to 22.00 |
| Old car wheels, gross ton..... | 10.25 to 11.00 |
| Heavy melting steel scrap, gross ton..... | 10.00 to 10.50 |

Birmingham

BIRMINGHAM, ALA., July 31, 1911.

Pig Iron.—All quotations are being made with some reluctance by local selling agents, and with four of the producing interests practically out of the market for any deliveries, either from the condition of order-books or prohibitive asking prices, the situation is considered decidedly stronger. The sales of the past week consisted mainly of comparatively small lots for prompt shipment, which is accounted for by the refusal of the majority of the producers to accept a \$10 Birmingham schedule. The extent of the tonnage still available at the \$10 basis is not definitely known, owing to the variance in quotations that are elicited, but it is thought that such iron can be had of only two concerns and for certain grades. The scarcity of low grades and high silicon iron is more pronounced than formerly, while complaint has been made of the rate at which No. 2 soft and No. 2 foundry are being delivered on contracts now in effect. The movement from all furnace yards increases gradually, and a further reduction in the output has just been made by the blowing out of the furnace of the Southern Iron & Steel Company at Alabama City, Ala., which has been operated on foundry grade for some three weeks. The extent to which shipments are now being made against contracts that were entered at higher prices than those prevailing is very noticeable and is taken as a further indication of improvement in the foundry trades. Among inquiries of the past week lots of 1200 tons, 1000 tons and 700 tons respectively were the principal considerations, which lots are understood to be still pending at this time. It is stated that quotations on the business just mentioned, all of which is for shipment over the remainder of the year, vary from \$10.25 to \$11, Birmingham. This last price was received for a lot of 100 tons, and 500 tons brought \$10.50, both lots being for delivery during the remainder of the year. No transactions of importance involving basic iron were reported and the charcoal iron market remains unchanged, with the output represented by the operations at only one plant. We quote the market as very strong for deliveries covering the remainder of the year at the following schedule, per gross ton, f.o.b. cars at Birmingham furnaces:

| | |
|-----------------------------------|--------------------|
| No. 1 foundry and No. 1 soft..... | \$10.50 to \$11.00 |
| No. 2 foundry and No. 2 soft..... | 10.00 to 10.50 |
| No. 3 foundry..... | 9.50 to 10.00 |
| No. 4 foundry..... | 9.25 to 9.75 |
| Gray forge..... | 9.25 to 9.75 |
| Mottled..... | 9.00 to 9.50 |
| Standard basic..... | 10.00 to 10.50 |
| Off basic..... | 9.75 to 10.25 |
| Charcoal car wheel iron..... | 22.50 |

Cast Iron Pipe.—Local interest is largely centered on the requirement of approximately 3000 tons of water pipe for the city of Portland, Ore., which will be placed August 31. By reason of the sizes specified, it is understood that the competition will be very keen, although the condition of the raw material market is such as to prohibit material shading. A round tonnage of 24-in. water pipe is soon to be placed for requirement at the South Omaha, Neb., stock yards and a small lot of 16-in. has just been submitted from McAlester, Okla. A municipality in south Texas is soon to enter the market for material to construct an entirely new water-works system, and a lot of some 500 tons of small-sized pipe has just been added to the contract recently awarded the United States Cast Iron Pipe & Foundry Company. There have been no developments to indicate the extent of requirement for gas mains in this city, with the addition of natural gas from the Fayette field. We continue to quote water pipe as follows, per net ton, f.o.b. cars here: 4 to 6-in., \$22; 8 to 12-in., \$21;

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over 12-in., average \$20, with \$1 per ton extra for gas pipe.

Old Material.—Dealers' asking prices are unchanged but the trading is light and the general condition of the market unsatisfactory. But little additional tonnage has been added to the holdings on local yards and consumers are ordering out all grades very sparingly. We continue to quote dealers' asking prices as follows, which are only nominal, per gross ton, f.o.b. cars here:

| | |
|---------------------------------|--------------------|
| Old iron axles (light)..... | \$13.50 to \$14.00 |
| Old steel axles (light)..... | 12.50 to 13.50 |
| Old iron rails..... | 12.50 to 13.00 |
| No. 1 railroad wrought..... | 11.00 to 11.50 |
| No. 2 railroad wrought..... | 9.50 to 10.00 |
| No. 1 country wrought..... | 7.50 to 8.00 |
| No. 2 country wrought..... | 7.00 to 7.50 |
| No. 1 machinery..... | 9.50 to 10.50 |
| No. 1 steel..... | 8.50 to 9.00 |
| Tram car wheels..... | 8.00 to 8.50 |
| Standard car wheels..... | 9.50 to 10.50 |
| Light cast and stove plate..... | 7.00 to 7.50 |

Preparations are being made for the relighting of the Alice furnace of the Tennessee Coal, Iron & Railroad Company, which is located in this city.

Ward W. Jacobs, president of the Shelby Iron Company, has returned to his home at Hartford, Conn., after having inspected the holdings of his company in this district. It is announced that the charcoal-iron furnace of that company will not be relighted until about September 1, owing to the extensive repairs that are now under way.

Buffalo

BUFFALO, N. Y., Aug. 1, 1911.

Pig Iron.—The market shows gradual improvement; prices are slightly firmer and there is a better feeling with regard to the immediate future. Inquiry is being maintained in fairly good volume, and there has been considerable buying. One furnace interest reports bookings aggregating about 12,000 tons of foundry and malleable from New York State and New England points for the week. The total sales for July make a very good showing for a month that is usually dull. Shipments on contracts are going forward in heavy volume. Prices exhibit a hardening tendency. Some furnace interests are quoting \$14 as a minimum for No. 1 X foundry and \$13.75 for No. 2 X. Other furnaces are still quoting 25c. per ton less on these two grades, but all are maintaining a minimum of \$13.50 for all lower grades. We quote as follows, f.o.b. Buffalo, for prompt and last half delivery:

| | |
|----------------------|--------------------|
| No. 1 X foundry..... | \$13.75 to \$14.25 |
| No. 2 X foundry..... | 13.50 to 14.00 |
| No. 2 plain..... | 13.50 to 13.75 |
| No. 3 foundry..... | 13.50 to 13.75 |
| Gray forge..... | 13.50 to 13.75 |
| Malleable..... | 13.75 to 14.25 |
| Basic..... | 13.75 to 14.25 |
| Charcoal..... | 16.50 to 17.25 |

Old Material.—The market continues strong with an active demand in a good many lines, particularly for heavy melting steel, steel turnings and cast iron borings, and mills are taking shipments against contracts very freely. We quote as follows, per gross ton, f.o.b. Buffalo:

| | |
|--|--------------------|
| Heavy melting steel..... | \$13.00 to \$13.50 |
| Low phosphorus steel..... | 15.50 to 16.00 |
| No. 1 railroad wrought..... | 14.00 to 14.50 |
| No. 1 railroad and machinery cast scrap..... | 13.75 to 14.25 |
| Old steel axles..... | 18.50 to 19.00 |
| Old iron axles..... | 22.00 to 22.50 |
| Old car wheels..... | 13.00 to 13.50 |
| Railroad malleable..... | 12.50 to 13.00 |
| Boiler plate..... | 12.50 to 13.00 |
| Locomotive grate bars..... | 11.00 to 11.50 |
| Pipe..... | 9.50 to 9.75 |
| Wrought iron and soft steel turnings..... | 7.00 to 7.50 |
| Clean cast borings..... | 6.75 to 7.25 |

Finished Iron and Steel.—Most selling agencies report business in general lines as keeping up well, the demand being good in all with the exception of plates. Several orders for good tonnages of steel bars have been received in the week, but most of the sales were of small lots. A Canadian buyer is reported to have taken 400 tons of sheet piling. Inquiries for some good tonnages in steel bars are still under negotiation. While there are rumors of lower than regular prices having been made, they cannot be substantiated, and the fact that large business is being placed at regular prices—1.25c. Pittsburgh for steel bars and 1.35c. for plates and shapes—would indicate that in this district prices are not being lowered. The demand for fabricated material is well sustained and most of the local fabricating shops have a large number of orders in hand and are running full. There is also a good deal of work on

architects' boards. Lupfer & Renwick, construction engineers, Buffalo, have been awarded Erie Canal contract No. 85 for a lift highway bridge at Phoenix, N. Y., taking about 100 tons of steel; also the operating machinery. Lathrop, Shea & Henwood, construction engineers, Buffalo, have received Erie Canal contract No. 86 for a highway bridge near Canajoharie, requiring 200 tons. Three additional buildings for Cornell University—an auditorium, a veterinary college building and a power house—are to be figured soon, besides the three buildings for which bids have just been received.

San Francisco

SAN FRANCISCO, July 25, 1911.

Notwithstanding some favorable indications the Pacific coast market remains in a condition of general stagnation. The movement in several lines has been smaller for July than for June and is hardly normal, even for midsummer. The number of inquiries from which any immediate results can be expected is limited and no great improvement is expected before the end of August, though considerable business is likely to come out in September. The local market on sheets is somewhat demoralized. Some change in the general situation will be brought about by the installation of a large and fairly complete stock of Carnegie products in San Francisco. The initial shipments have already been dispatched and the material will be carried at the former site of the Risdon Iron Works. The business will be handled entirely through the regular jobbing trade and the ability of merchants to secure material at short notice is expected to eliminate much of the foreign material which has been a feature of this market for several years.

Bars.—As usual at this season the jobbing trade in soft steel bars is confined to narrow limits, and orders placed by the larger manufacturing interests are of little importance, being confined mainly to requirements of the near future. Several good orders have been placed for reinforcing bars, the total movement being fully equal to that of last month. There is a fair amount of new inquiry, though few large individual orders are in sight. Merchants show no disposition to enter the market on a larger scale than for some time past. Bars from store, San Francisco, are quoted at 2c. for steel and 1.90c. for iron.

Structural Material.—Very little movement has been noted in the last fortnight, large fabricating contracts being entirely absent. Nothing of much importance is being figured at other coast points, and while contracts are expected shortly on several local buildings the amount of work actually in sight is not very large. Considerable work of a very small nature, 100 tons and less to the job, is coming out in the interior, including numerous steel bridges, jail cells, etc. Milliken Bros., Inc., have taken an order for towers for the Portland Railway, Light & Power Company, Portland, Ore., amounting to about 600 tons, and the Southern California Edison Company has ordered two 182-ft. transmission towers. The contract for the Union Iron Works marine shop building will be withheld for a few weeks. An award on the Knights of Columbus building is expected next week. The York Safe & Lock Company has the contract for vault work in the D. O. Mills bank building, Sacramento. C. E. Freeman, architect, is drawing plans for a 6-story class A apartment house to be erected on California street. An inquiry is expected shortly for the Standard Oil Company's local building. Plans have been drawn for a new theatre at Los Angeles, to cost about \$600,000, and there is some talk of a large building to be erected by the Los Angeles Investment Company. Competitive plans will be submitted shortly for a hall of justice for the State of Washington. G. H. Cobb, Seattle, Wash., is planning to erect an 11-story class A building. Figures are being taken on a small hospital in Oakland, Cal. A large lot of steel for bridge work was recently sent to Japan via Seattle.

Rails.—The tonnage ordered in this territory of late has been comparatively light. There is some activity in the construction of logging roads in the north coast district, and there are a number of inquiries from California concerns for from 500 to 4000 tons, but buyers are very slow to close the transactions. In some ways, however, the outlook is encouraging, as several of the projected lines have obtained strong support, and their inquiries are taking fairly definite shape. There is very little demand for light rails.

THE IRON AND METAL MARKETS

Sheets.—Open market conditions prevail in the local distributive trade on black, galvanized and blue annealed sheets, owing to price cutting by merchants who have large stocks brought in by sea at considerably less than the rail rates. Some small buyers are taking advantage of this condition to lay in supplies, but on the whole the movement is only moderate. Merchants are fairly well supplied and are buying sparingly.

Plates.—Considerable small marine work is coming up along the coast, and more demand than usual is noted for marine plates, though the tonnage is never very large. Scattering orders for tank plates are coming from the oil fields, and the Standard Oil Company is starting work on its new plant at El Segundo, which will require a heavy tonnage. Some business is coming from gas companies. The Honolulu, T. H., Gas Company is planning to erect a new gas tank of 200,000 cu. ft. capacity, and the Pacific Gas & Electric Company is building a gas tank at Petaluma, Cal. The Dundon Iron Works has submitted a low bid on a water tank for the city of San Francisco, requiring about 160 tons. No important penstock jobs have materialized of late.

Merchant Pipe.—The tonnage taken by some of the more important interests has been considerably smaller for July than for June, and business appears to be quieter now than early in the year. The jobbing trade is confined to unusually narrow limits, and while some improvement is expected in September merchants are not greatly increasing their stocks. A few fair inquiries have come from the oil fields, but no transactions of any significance are being closed, and the tendency in that district is to limit operations as closely as possible. Santa Clara County, Cal., is taking figures on 26,000 ft. of 3 and 4-in. pipe, and the city of Los Angeles will take bids about the end of the month for 35,000 ft. of casing and 60,000 ft. of 2-in. pipe.

Cast Iron Pipe.—The business actually booked is still rather light, but there is plenty of business in prospect, and renewed activity is expected within a week or two. Inquiries for water-works in small towns are more numerous than for some time and figures will be taken soon by Alturas, Orland, Tracey and a number of other towns. Porterville, Cal., will be in the market for a considerable tonnage in about a month. Long Beach, Cal., will also place a substantial order shortly. The city of Los Angeles is in the market for 310 tons, and Portland, Ore., will receive bids August 1 for about 3600 tons of 6 to 12-in. pipe and 200 tons of specials.

Pig Iron.—Local business continues on a very moderate scale, as few of the foundries are especially busy and most of them have considerable material on hand. Southern No. 2 foundry iron is quoted nominally at \$20. Very little is used locally, but some No. 1 Southern iron is used at other coast points, being priced at about \$21. Prices of foreign iron vary considerably, according to brand as well as conditions of sale, the present range being \$20 to \$24, the lower figure being for brands about equal to No. 2 Southern.

Old Material.—So far there has been no general demand for cast iron scrap. There has been no pressure to sell among the dealers, however, and ordinary material is steady at \$16 per net ton, while heavy machinery scrap is held at \$18 and some has recently been sold at that figure. A considerable tonnage of rerolling rails is being delivered on old contracts. The city of Los Angeles will receive bids July 31 for 15,000 ft. of 16-lb. relaying rails. Buyers of melting scrap are still keeping out of the market and wrought iron scrap is extremely dull. Quotations are as follows: Cast iron scrap, per net ton, \$16 to \$18; steel melting scrap, per gross ton, \$10.50 to \$11; wrought scrap, per net ton, \$11 to \$15; rerolling rails, per net ton, \$11.

The rolling mill of the Rudgear-Merle Company in this city will start up about July 31. The company has purchased a large quantity of rerolling rails. It manufactures bedsteads and other metal furniture and uses large quantities of hard steel.

The San Francisco Iron & Metal Company is considering the installation of one or two additional shears and some small machine tools. A shed will be built over its equipment during the fall.

C. H. Snyder, San Francisco representative of Milliken Bros., Inc., has patented a system of construction for the use of steel or cast iron columns with flat concrete slab floors, by which the weight of the floor is transmitted directly to the columns. This system will be used in the Bankers Investment Company building in this city and a small hospital building in Oakland.

St. Louis

St. Louis, Mo., July 31, 1911.

The iron and steel market is developing indications of activity in the near future, this being made apparent by increasing inquiries which bear ear-marks of greater sincerity than some of those put forth in recent weeks. At the moment no especially large sales are being closed, but there is a comfortable aggregate to the small orders and to the specifications on contracts. The shipments on the latter have been better for July than for June, which in turn was the best month since last February.

Pig Iron.—The efforts to hold up pig iron in the St. Louis market have been to some extent successful, though there is still evidence that an attractive order would be accepted at a figure below the generally quoted price. The larger producers are the firmest in their attitude. The most interesting inquiry of the week has been that of the Scullin-Gallagher Steel Company for prices on 10,000 tons of basic, for delivery in the first half of next year, the company having enough on hand to cover immediate requirements. Small inquiries in the market from Iowa for Northern and Southern No. 2 iron aggregate about 1000 tons, while there is also an inquiry for about 1000 tons of charcoal. A sale of 1000 tons of malleable was made the past week, but details are withheld. On Southern No. 2 the quotation remains nominally at \$10.50, Birmingham, but this is not the minimum, when it comes to actual dealing. The news from the foundries is not particularly enthusiastic at present, some being reported closed indefinitely.

Coke.—One inquiry of the week was for 500 tons per month of furnace coke for 12 months. The general run of inquiries continues good with no especially large contracts closed. Nevertheless the tone of the market is distinctly better, doubtless due to the approach of the more active season. Shipments on specifications on contracts are holding up fairly well for the season of the year.

Finished Iron and Steel.—Generally satisfactory conditions have prevailed in the finished product market. No large orders were placed, though the totals will run up pretty well. In standard rails two orders of 500 tons each were closed and a third, held up, was released for the same amount; orders for smaller amounts ran in all to about 1000 tons. Another prospective order for a quantity of considerable moment, considering the time of the year, is in sight and may be closed this week, while quite a number of minor inquiries are in the market. In light rails the coal mining companies are buying well, but the lumber companies are not doing anything of consequence. The structural business for the week will run about 2000 tons in small lots, with good requisitions on contracts.

Old Material.—The feature of the market the past week has been the decided activity in steel, the mills having shown considerable anxiety to buy at advancing prices. The market here is completely cleared of stock and dealers are inclined to make the prices even higher than they are. The only list out so far is that of the Missouri Pacific, about 1500 tons. Those of the other roads will be out during the week and the prices made will then indicate the tendency of the market. In other lines than steel the market shows no particular change, though dealers are rather stiff in their attitude toward prices. Dealers' prices per gross ton, f.o.b. St. Louis, are as follows:

| | |
|--|--------------------|
| Old iron rails..... | \$12.50 to \$13.00 |
| Old steel rails, rerolling..... | 11.25 to 11.75 |
| Old steel rails, less than 3 ft..... | 11.50 to 12.00 |
| Relaying rails, standard section, subject to inspection..... | 23.00 to 23.50 |
| Old car wheels..... | 13.00 to 13.50 |
| Heavy melting steel scrap..... | 11.50 to 12.00 |
| Frogs, switches and guards cut apart..... | 11.50 to 12.00 |

The following quotations are per net ton:

| | |
|--|--------------------|
| Iron fish plates..... | \$11.00 to \$11.50 |
| Iron car axles..... | 18.50 to 19.00 |
| Steel car axles..... | 17.50 to 18.00 |
| No. 1 railroad wrought..... | 10.75 to 11.25 |
| No. 2 railroad wrought..... | 9.75 to 10.25 |
| Railway springs..... | 9.75 to 10.25 |
| Locomotive tires, smooth..... | 14.50 to 15.00 |
| No. 1 dealers' forge..... | 8.50 to 9.00 |
| Mixed borings..... | 3.50 to 4.00 |
| No. 1 busheling..... | 9.25 to 9.75 |
| No. 1 boilers cut to sheets and rings..... | 8.00 to 8.50 |
| No. 1 cast scrap..... | 10.00 to 10.50 |
| Stove plate and light cast scrap..... | 8.00 to 8.50 |
| Railroad malleable..... | 8.00 to 8.50 |
| Agricultural malleable..... | 7.00 to 7.50 |
| Pipes and flues..... | 8.00 to 8.50 |
| Railroad sheet and tank scrap..... | 8.00 to 8.50 |
| Railroad grate bars..... | 8.00 to 8.50 |
| Machine shop turnings..... | 6.50 to 7.00 |

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New York

NEW YORK, August 2, 1911.

Pig Iron.—Business in this immediate vicinity has not been large, founders continuing to buy in small quantities for immediate delivery. A little better movement is taking place in New England, with occasional purchases of 500 tons or more. Northern iron is still quoted as follows at tidewater: No. 1 foundry, \$15.50 to \$15.75; No. 2 X, \$15 to \$15.25; No. 2 plain, \$14.50 to \$15. Southern No. 1 foundry is quoted at \$14.75 to \$15.25 and No. 2, \$14.25 to \$14.75.

Cast Iron Pipe.—Some small New England lettings are advertised. Bidders on the 11,000 tons asked for by Detroit have been notified that no award will be made but that the letting will be readvertised. General business is quiet. Carload lots of 6 in. are quoted at \$21 to \$22 per net ton, tidewater.

Old Material.—From the point of sales made, dealers report conditions somewhat less encouraging, except in foundry grades, which are in rather better demand. Fair-sized sales of cast scrap have been made for deliveries running over the next six months, on which a slightly higher price was obtained than current quotations. A better inquiry is observed for old car wheels. Holders of all kinds of scrap are firm in their views, influenced by the steady gain in steel works operations. Quotations are as follows, per gross ton, New York and vicinity:

| | |
|---|--------------------|
| Old girder and T-rails for melting..... | \$11.50 to \$11.75 |
| Heavy melting steel scrap..... | 11.00 to 11.25 |
| Relaying rails..... | 20.50 to 21.50 |
| Rerolling rails (nominal)..... | 12.25 to 12.50 |
| Standard hammered iron car axles..... | 22.50 to 23.00 |
| Old steel car axles..... | 17.50 to 18.00 |
| No. 1 railroad wrought..... | 13.75 to 14.25 |
| Wrought iron track scrap..... | 12.75 to 13.25 |
| No. 1 yard wrought, long..... | 11.75 to 12.25 |
| No. 1 yard wrought, short..... | 11.00 to 11.50 |
| Light iron..... | 4.75 to 5.25 |
| Cast borings..... | 7.00 to 7.50 |
| Wrought turnings..... | 7.50 to 8.00 |
| Wrought pipe..... | 11.00 to 11.50 |
| Old car wheels..... | 11.25 to 11.75 |
| No. 1 heavy cast, broken up..... | 11.25 to 11.75 |
| Stove plate..... | 8.50 to 9.00 |
| Locomotive grate bars..... | 9.00 to 9.50 |
| Malleable cast..... | 10.50 to 11.00 |

Finished Iron and Steel.—Confidence in the promise of general conditions is the only favorable feature of business in finished lines. It is not based on an increase in sales. Less new projects of size in structural shapes came to light this week than has been the case for some time. The structural awards include: 1500-ton addition to Du Pont Building, Wilmington, Del., to Cambria Steel Company, which also took a 90-ton bridge for the Pennsylvania Railroad, and 1000 tons for a high school building, West Philadelphia, to American Bridge Company. The Wells Brothers Company has the general contract for the Brigham Hospital, Boston, requiring 1000 tons. The work for the piersheds at Norfolk, it appears, has not yet been given to the Virginia Bridge Company. The Central Railroad of New Jersey is to build a 1500-ton Scherzer bridge; bids will shortly be asked for a two-story building, Clinton & Russell, New York, architects, for the Essex County National Bank, Newark, and the Bartholomay Brewing Company is to erect a brew-house in Rochester. Quotations remain: Plain structural material and plates, 1.51c. to 1.56c.; steel bars, 1.36c. to 1.41c.; bar iron, 1.30c. to 1.35c., all New York. Plain material and plates from store, New York, 1.80c. to 1.90c.

Ferroalloys.—Some sellers of ferrosilicon are out of the market in New York, as they are demanding what it would cost to import foreign ferrosilicon at this time, which is around \$59, delivered at Pittsburgh. Ferromanganese is very quiet and quoted at \$36.50 to \$37, Baltimore.

The Associated Foundry Foremen of Philadelphia have decided to hold an outing at Central Park, in that city, on Saturday, September 16. Several meetings of a special committee have been held and President C. R. Brown now announces the following general committee: C. J. Krayner, John Alexander, C. S. Muir, J. Whitehead, T. Connelly, J. Butterworth, G. W. Moore, H. B. Taylor, Jr., H. Freiler, T. Livezey, Thomas C. Smith, W. Elkins, Charles Goldman, A. Carr, H. Bing and E. F. Lovell. Plans are being made for a number of athletic events, for which prizes will be awarded. Tickets for the outing will be obtainable from any member of the committee.

Metal Market

NEW YORK, August 2, 1911.

The Week's Prices

| | | Cents Per Pound for Early Delivery. | | | | | |
|-------------------|-------|-------------------------------------|-----------|-----------|------------|------------|----------|
| Copper, New York. | | Electro. | Tin. | New York. | Lead. | St. Louis. | Spelter. |
| July. | Lake. | lvitic. | New York. | York. | St. Louis. | New York. | Lon. |
| 27, 1..... | 12.75 | 12.60 | 41.70 | 4.50 | 4.45 | 5.85 | 8.65 |
| 28..... | 12.75 | 12.60 | 41.55 | 4.50 | 4.45 | 5.85 | 8.67½ |
| 29..... | 12.75 | 12.60 | ..... | 4.50 | 4.45 | 5.90 | 8.70 |
| 31..... | 12.75 | 12.62½ | 41.25 | 4.50 | 4.45 | 5.90 | 8.70 |
| Aug. | | | | | | | |
| 1..... | 12.75 | 12.62½ | 41.70 | 4.50 | 4.45 | 5.50 | 8.70 |
| 2..... | 12.75 | 12.62½ | 42.00 | 4.50 | 4.45 | 5.50 | 8.70 |

Deliveries of tin into consumption during July were larger than in any other month in the year. The month's exports of copper surpassed the record of any other month this year by fully 10,000 tons. Lead continues firm. Spelter has advanced 10 points.

Copper.—While there is not a great demand for copper the market has strengthened very decidedly in tone as a result of custom house returns on the exports of copper which were made public yesterday afternoon. They showed that during July 34,955 tons were sent abroad and this was far in excess of the exports of any other month of the year. The total exports of copper from January 1 have been fully 41,000 tons more than were exported in the same period of last year. While domestic consumers seem to take very little interest in the copper situation the heavy exports have strengthened the market and electrolytic copper has been advanced slightly and it is now 12.62½c. The price of Lake copper is unchanged at \$12.75c. The London market is experiencing the usual summer dullness and prices fluctuated very little during the week. This morning spot copper was sold in London at £56 2s. 6d. and futures for £56 15s. Judging from the shipments under way the exports of copper will continue heavy. L. Vogelstein & Co. give the following figures of German consumption of foreign copper from January 1 to June 30: Imports, 90,281 tons; exports, 4093 tons; consumption, 86,188 tons, as compared with consumption during the same period in 1910 of 79,488 tons. Of the above quantity 78,454 tons were imported from the United States.

Pig Tin.—The feature of the pig tin market during the week has been the somewhat surprising reports of deliveries of pig tin into consumption during July, as compiled by C. Mayer, secretary of the New York Metal Exchange. The figures show that deliveries into consumption during the month were 4300 tons, which is considerably above a normal month's arrivals. The arrivals were heavy, however, and they amounted in all to 4837 tons. In anticipation of a good report there was a fair amount of buying on Monday for tin for early delivery. Yesterday there was some good trading, but principally between dealers. While spot tin is fairly plentiful, most of the tin delivered during July was sent to the interior and this has tended to strengthen the New York market in the face of a slight decline in London. Pig tin in New York this morning was sold for 42c. and the market showed signs of advancing, while in London spot tin sold at £191 and futures at £188 5s.

Tin Plates.—There is a steadily increasing demand for tin plates and it comes principally from small manufacturers. The can manufacturers seem to be out of the market at present. The price is unchanged at \$3.94 for 100 lb. coke plates. The demand for foreign tin plates is not so heavy as it has been and the quotation is unchanged from last week at 13s. 9d. at Swansea, Wales.

Lead.—Lead continues strong and shows signs of further advancing. There is not a great demand from consumers but many independent sellers of lead in this market have disposed of their holdings and their customers are looking to the leading interest to fill their wants. Regardless of the fact that outside sellers and the American Smelting & Refining Company are getting 4.45c. for lead in St. Louis, quotations in this market are unchanged at 4.50c. As a rule this market is 15 points higher than the St. Louis market. The American Smelting & Refining Company is in control of the situation and has practically shut out other sellers here, excepting those who control special brands.

Spelter.—The spelter market is very uncertain. Although average quotations have advanced 10 points there seems to be a wide difference of opinion among sellers as to what they should ask and inquiries have resulted in quotations ranging from 5.70c. to 5.90c., East St. Louis. Some carload lots have been offered in this market at slightly lower prices than 5.70c., but

THE IRON AND METAL MARKETS

most of this spelter has been bought, according to information obtained this morning. Consumers are shopping about a great deal and shrewd purchasers may be getting concessions under 5.70c. St. Louis, but that is the average price. This makes the market 5.90c. in New York, but very few orders are being placed at that figure, as most buyers are closing for spelter f.o.b. at East St. Louis.

Antimony.—Antimony is attracting very little attention and the market is weak with Hallett's at 8c.; Cookson's, 8.50c.; Chinese brands, 7.25c., and Hungarian grades, 7.30c.

Chicago

AUGUST 2. (By Telegraph).—Trade in metals locally has been light, with little evidence of strength except in spelter. Tin is slightly lower. Interest in copper is dull, but prices apparently are well maintained. We quote, Chicago delivery, as follows: Casting copper, 12.65c.; Lake, 13c., in carloads, for prompt shipment; small lots, $\frac{1}{4}$ c. to $\frac{3}{4}$ c. higher; pig tin, carloads, 42.50c.; small lots, 44.50c.; lead, desilverized, 4.47 $\frac{1}{2}$ c. to 4.50c. for 50-ton lots; corroding, 4.72 $\frac{1}{2}$ c. to 4.75c. for 50-ton lots; in carloads, $\frac{2}{3}$ c. per 100 lb. higher; spelter, 5.65c. to 5.70c.; Cookson's antimony, 9 $\frac{1}{4}$ c., and other grades, 8 $\frac{1}{4}$ c. to 8 $\frac{3}{4}$ c., in small lots; sheet zinc is \$7.50 f.o.b. La Salle, in carloads of 600-lb. casks. On old metals we quote for less than carload lots: Copper wire, crucible shapes, 10 $\frac{3}{4}$ c.; copper bottoms, 9 $\frac{1}{4}$ c.; copper clips, 10 $\frac{1}{4}$ c.; red brass, 9 $\frac{1}{4}$ c.; yellow brass, 7 $\frac{1}{4}$ c.; lead pipe, 3.90c.; zinc, 3.90c.; pewter, No. 1, 26c.; tinfoil, 33c.; block tin pipe, 37c.

St. Louis

JULY 31.—The metal market continues to show a firm tendency, and prices of lead and spelter are especially strong on advances. Lead, Missouri brand, is quoted 4.47 $\frac{1}{2}$ c. to 4.50c., with the demand good. Spelter is quotable at 5.67 $\frac{1}{2}$ c. to 5.70c. and in good request. Tin is 42c., a slight drop from last week, while copper is up, Lake being quoted at 13.10c. and electrolytic at 12.95c. Cookson's antimony is unchanged at 8.85c. Reports from the Joplin district are that heavy rains flooded the mines, cutting the production heavily during the past week. The zinc ore market stands at \$38 to \$41.50 per ton despite the advance in spelter. Lead ore is stronger at \$58 to \$60 per ton. Calamine continues steady at \$21 to \$24 per ton on a 40 per cent. basis, choice lots going as high as \$25. The surplus blende has decreased more than one-half in the bins. Old metal prices are as follows: Light brass, 5c.; heavy brass and light copper, 8c.; heavy copper and copper wire, 9c.; zinc, 3c.; lead, 3 $\frac{1}{4}$ c.; pewter, 20c.; tinfoil, 29c.; tea lead, 3c.

Iron and Industrial Stocks

NEW YORK, Aug. 2, 1911.

The iron and industrial stocks have not shown much change since the last report, except Bethlehem Steel, both common and preferred, which advanced sharply, and American Shipbuilding common, which declined heavily with the passing of the dividend. In quite a number of stocks no transactions were noted. The range of prices on active stocks from Wednesday of last week to Tuesday of this week was as follows:

| | | | |
|-------------------------------|--------------------------------------|-------------------------------|------------------------------------|
| Allis-Chalm., pref. | 28 - 28 $\frac{3}{4}$ | Pressed Steel, pref. | 101 $\frac{1}{2}$ -103 |
| Beth. Steel, com. | 34 $\frac{1}{2}$ -38 $\frac{1}{2}$ | Railway Spring, com. | 36 $\frac{3}{4}$ -37 $\frac{1}{2}$ |
| Beth. Steel, pref. | 63 $\frac{3}{4}$ -66 $\frac{3}{4}$ | Republic, com. | 29 $\frac{1}{2}$ -30 $\frac{1}{2}$ |
| Can. com. | 11 - 11 $\frac{1}{2}$ | Republic, pref. | 94 $\frac{1}{2}$ -94 $\frac{3}{4}$ |
| Can. pref. | 87 - 88 $\frac{3}{4}$ | Sloss, com. | 49 $\frac{1}{2}$ |
| Car & Fdry, com. | 56 $\frac{3}{4}$ -57 $\frac{1}{4}$ | Pipe, com. | 15 $\frac{1}{2}$ |
| Steel Foundries. | 39 | Pipe, pref. | 53 |
| Colorado Fuel. | 33 - 34 $\frac{1}{2}$ | U. S. Steel, com. | 78 $\frac{3}{4}$ -80 |
| General Electric. | 162 $\frac{1}{4}$ -163 $\frac{1}{2}$ | U. S. Steel, pref. | 119 $\frac{1}{2}$ -120 |
| Gr. N. Ore Cert. | 57 - 59 | Westinghouse Elec. | 72 $\frac{1}{2}$ -75 |
| Int. Harv., com. | 122 $\frac{1}{2}$ -124 $\frac{1}{2}$ | Va. I. C. & C. | 83 $\frac{1}{2}$ -89 |
| Int. Pump, com. | 40 $\frac{1}{2}$ -41 | Am. Ship, com. | 55 - 62 |
| Int. Pump, pref. | 88 $\frac{3}{4}$ | Chi. Pne. Tool. | 51 $\frac{1}{2}$ -51 $\frac{3}{4}$ |
| Locomotive, com. | 39 $\frac{3}{4}$ -40 $\frac{1}{2}$ | Cambria Steel. | 45 $\frac{1}{2}$ -47 $\frac{1}{2}$ |
| Locomotive, pref. | 105 | Lake Sup. Corp. | 27 |
| Nat. En. & St., com. | 20 $\frac{1}{4}$ -20 $\frac{3}{4}$ | Crucible Steel, pref. | 82 - 82 $\frac{3}{4}$ |
| Nat. En. & St., pref. | 98 $\frac{1}{2}$ -99 $\frac{1}{4}$ | Harb. Wk. Ref., pref. | 99 - 100 |
| Pressed Steel, com. | 36 $\frac{1}{2}$ -37 | | |

Dividends Declared

The United States Steel Corporation, regular quarterly 1 $\frac{3}{4}$ per cent. on the preferred, payable August 30, and 1 $\frac{1}{4}$ per cent. on the common, payable September 29.

The Standard Sanitary Mfg. Company, Pittsburgh, regular quarterly 1 $\frac{3}{4}$ per cent. on the preferred; regular quarterly 1 per cent., and extra 1 per cent. on the common, paid July 25.

The International Harvester Company, regular quar-

terly 1 $\frac{3}{4}$ per cent. on the preferred, payable September 1.

The Inland Steel Company, Chicago, quarterly, 1 $\frac{3}{4}$ per cent., payable September 1.

The Pressed Steel Car Company, regular quarterly, 1 $\frac{3}{4}$ per cent. on the preferred, payable August 23.

The Ashton Valve Company, quarterly, 2 per cent., payable August 15.

The Peck, Stow & Wilcox Company, regular quarterly, 2 $\frac{1}{2}$ per cent.

The American Shipbuilding Company has passed the dividend on the common stock.

Vismara Steel Sheets.—A new line of steel sheets is being placed on the market by the Inland Steel Company, Chicago, Ill., to be known by the trade name Vismara, meaning purity and strength. Vismara, the company states, is a pure homogeneous dense metal which possesses all the qualities necessary to stand trying exposure above or below ground. The metal is tough, ductile, strong, pliable and easy worked, and the manufacturer places much emphasis on its lasting qualities. Vismara sheets are furnished in the following grades and sizes: Blue annealed, $\frac{3}{8}$ in. to No. 16 gauge, widths up to 48 in., lengths up to 180 in.; box annealed, Nos. 18 to 26 gauge, widths up to 48 in., lengths up to 144 in.; galvanized, Nos. 10 to 18 gauge, widths up to 48 in., Nos. 20 to 28 gauge, widths up to 36 in., and lengths up to 144 in. They are made either corrugated or plain and are offered for all uses met with in a sheet metal business. A descriptive pamphlet about this new metal has been prepared by the company.

The Standard Steel Company, Bedford, Ohio, which recently increased its capital stock from \$40,000 to \$100,000, will add to its plant by installing one or two additional stands of cold rolls and an annealing and pickling outfit. Further extensions may be made a little later. The company makes a specialty of polished stove plates. At the recent annual meeting officers for the year were elected as follows: President and general manager, C. R. Williams; vice-president, C. R. Curtis; secretary, W. A. Green; treasurer, G. A. Curtis. The officers, with R. W. White, W. M. Mills and A. F. Pav, make up the board of directors.

A device which prevents a trolley car from being started when a passenger is mounting or dismounting is being tested on the line of the Portland Railway, Light & Power Company, Portland, Me. It consists of a hinged step which is depressed about $\frac{1}{2}$ in. when a weight of from 5 to 10 lb. is placed on it. This breaks an electric circuit connected with the contractor, so that the contractor fails to close. The device is arranged, however, so that the motorman is able to reverse the car regardless of the condition of the step.

The Aluminum Company of America, New Kensington, Pa., recently contracted with the Pittsburgh office of the Hooven, Owens, Rentschler Company for a large cross compound Hamilton-Corliss engine for direct connection to two outside packed pumps which are to work against an accumulator with a pressure of 1500 lb.

The foundry business of the late Henry Clay Larrabee, Baltimore, Md., has been taken over by William I. Krause and S. E. Wollett, who have severed their connection with the Maryland Steel Company. Mr. Krause has been identified with the steel business for about 20 years.

On July 19 the net surplus of idle cars on the railroads of the United States and Canada stood at 149,072, as compared with 163,621 two weeks before, a reduction of 8.8 per cent. The number of idle cars, or the gross surplus, was 150,433, as compared with 165,508. The surplus of coal cars decreased from 70,363 to 62,689, and of box cars from 52,875 to 46,675.

Monel metal in sheets, small rods and wire is now being produced by Shimer, McGlyn & Co., Nineteenth and Washington streets, Philadelphia.

American Iron Trade Statistics for 1910

Statistics of the American Iron and Steel Association

The annual statistical report of the American Iron and Steel Association, 261 South Fourth street, Philadelphia, Pa., containing the statistics of iron and steel production for 1910, is now ready for distribution. It comprises 120 pages, and the price is \$5 per copy. The information given is more comprehensive than usual, indicating the indefatigable energy of James M. Swank, the veteran general manager of the association, who, for more than 38 years has been collecting and publishing these statistics. Some of the figures have already been presented in our columns, having been taken from the Bulletin of the association, in which they were given publicity as soon as the information was in shape to be announced. The report now gives a complete record of the American production of iron and steel in 1910. Extracts from it are as follows:

Production of Pig Iron

The production of pig iron in 1910, classified according to the fuel used, was as follows compared with the three preceding years.

| Fuel Used— Gross Tons. | 1907. | 1908. | 1909. | 1910. |
|----------------------------------|------------|------------|------------|------------|
| Bituminous, chiefly coke..... | 23,972,410 | 15,331,863 | 24,721,037 | 26,257,978 |
| Anthracite and coke..... | 1,335,286 | 353,315 | 682,383 | 628,579 |
| Anthracite alone..... | 36,268 | 1,694 | 16,048 | 20,503 |
| Charcoal..... | 437,397 | 249,146 | 376,003 | 396,507 |
| Total..... | 25,781,361 | 15,936,018 | 25,795,471 | 27,303,567 |

Small quantities of pig iron made with charcoal and electricity are included in the charcoal figures. Small quantities of ferroalloys made with electricity are also included in the totals for each year.

The following table gives the production of Bessemer and low-phosphorus pig iron by States in late years:

| States— Gross Tons. | 1907. | 1908. | 1909. | 1910. |
|--------------------------------------|------------|-----------|------------|------------|
| Pennsylvania..... | 5,736,301 | 3,069,015 | 3,851,606 | 4,393,905 |
| Ohio..... | 3,711,001 | 1,907,529 | 3,628,046 | 3,460,736 |
| Illinois..... | 1,782,740 | 1,367,283 | 1,804,402 | 1,826,407 |
| New York and New Jersey..... | 929,519 | 483,900 | 628,426 | 834,632 |
| Maryland and Vir- ginia..... | 421,958 | 183,879 | 284,356 | 326,614 |
| West Va., Tenn., and Kentucky.... | 324,323 | 121,703 | 293,837 | 267,577 |
| Mich., Wis., Minn., and Cal..... | 325,778 | 83,667 | 66,697 | 135,771 |
| Total..... | 13,231,620 | 7,216,976 | 10,557,370 | 11,245,642 |

The following table gives the production of basic pig iron by States since 1907:

| States— Gross Tons. | 1907. | 1908. | 1909. | 1910. |
|------------------------------------|-----------|-----------|-----------|-----------|
| New York and New Jersey..... | 215,197 | 110,167 | 466,919 | 414,228 |
| Penna. — Alle- gheny County.... | 1,812,007 | 1,854,327 | 3,187,687 | 2,807,551 |
| Penna. — other counties..... | 1,772,401 | 843,535 | 2,068,558 | 2,439,514 |
| Virginia and Ala- bama..... | 542,256 | 450,753 | 402,903 | 697,377 |
| Ohio..... | 451,378 | 278,386 | 845,956 | 1,155,434 |
| Ind., Ill., Mo., and Col..... | 581,980 | 472,976 | 1,278,202 | 1,570,504 |
| Total..... | 5,375,219 | 4,010,144 | 8,250,225 | 9,084,608 |

The production of spiegeleisen and ferromanganese in 1910 was 224,431 tons, against 225,040 tons in 1909, a decrease of 609 tons. The production of ferromanganese alone in 1909 was 71,376 tons, against 82,209 tons in 1909. Of spiegeleisen alone the production was 153,055 tons, against 142,831 tons in 1909. The spiegeleisen and ferromanganese produced in 1910 were made by Pennsylvania and Illinois. The total production of both products since 1899 is given in the following table:

| Years. | Gross Tons. | Years. | Gross Tons. |
|-----------|-------------|-----------|-------------|
| 1899..... | 219,768 | 1905..... | 289,983 |
| 1900..... | 255,977 | 1906..... | 300,500 |
| 1901..... | 291,461 | 1907..... | 339,348 |
| 1902..... | 212,934 | 1908..... | 152,018 |
| 1903..... | 192,661 | 1909..... | 225,040 |
| 1904..... | 219,446 | 1910..... | 224,431 |

In addition to the above 47 tons of ferrophosphorus were produced in 1902, 946 tons in 1904, 1243 tons in 1905, 142 tons in 1906, 1273 tons in 1908, 3385 tons in 1909, and 3471 tons in 1910. In 1903 and 1907 this grade was not reported.

Consumption of Iron Ore in Blast Furnaces

We estimate the total consumption of domestic and foreign iron ore, not including mill cinder, scale, scrap, etc., in the manufacture of pig iron in 1910 at 51,563,000 tons, as compared with 48,660,000 tons in 1909. The average consumption of iron ore in 1910 per ton of pig iron made was 1.888 tons, as compared with 1.886 tons in 1909. In addition over 500,000 tons of ore are annually consumed by rolling mills and steel works.

In addition to the 51,563,000 tons of iron ore consumed in 1910 by blast furnaces in the manufacture of pig iron, about 2,800,000 tons of mill cinder, scale, scrap, slag, zinc residuum, etc., were also used as compared with about 2,535,000 tons in 1909. Adding these figures to the ore reported gives a total for 1910 of about 54,363,000 tons, or an average of about 1.99 tons of iron ore and other metallic material used per ton of pig iron made, as compared with about 51,195,000 tons, or an average of about 1.08 tons, in 1909.

In the following table the production of pig iron by grades is given from 1907 to 1910:

| Grades— Gross Tons. | 1907. | 1908. | 1909. | 1910. |
|--|------------|------------|------------|------------|
| Bess. and low-phos. | 13,231,620 | 7,216,976 | 10,557,370 | 11,245,642 |
| Basic (mineral fuel) | 5,375,219 | 4,010,144 | 8,250,225 | 9,084,608 |
| Forge pig iron.... | 683,167 | 457,164 | 725,624 | 564,157 |
| Fdy. and ferroal. | 5,151,209 | 3,637,622 | 5,322,415 | 5,260,447 |
| Malleable Bessemer | 920,290 | 414,957 | 658,048 | 843,123 |
| Spiegeleisen..... | 283,430 | 111,376 | 142,831 | 153,055 |
| Ferromanganese.... | 55,918 | 40,642 | 82,209 | 71,376 |
| White, mottled, di- rect castings, etc. | 80,508 | 47,137 | 56,749 | 81,159 |
| Total..... | 25,781,361 | 15,936,018 | 25,795,471 | 27,303,567 |

Production of All Kinds of Steel

The production of all kinds of steel ingots and castings in 1910 amounted to 26,094,919 tons, against 23,955,021 tons in 1909, an increase of 2,139,898 tons, or almost 9 per cent. Of the total production in 1910 25,154,087 tons were ingots and 940,832 tons were castings, as compared with 23,298,779 tons of ingots and 656,242 tons of castings in 1909. The production in 1910 was much the largest in our history. The year of next largest production was 1909. The following table gives the production of all kinds of steel ingots and castings by processes in 1910 and four previous years:

| States—Gross Tons All Kinds of Steel. | Bessemer. | Open- hearth. | Crucible and All Other. | Total Ingots and Castings. |
|---|------------|------------------|-------------------------------|----------------------------------|
| Maine, Mass., R. I., and Conn..... | 2,592 | 223,158 | 23,751 | 249,501 |
| New York and New Jersey..... | 740,529 | 713,245 | 34,856 | 1,488,630 |
| Pennsylvania..... | 2,975,750 | 10,153,816 | 77,973 | 13,207,539 |
| Del., Md., Dist. of Col., Va., West Va., Ky., Ga., Ala. La. and Tex..... | 589,949 | 897,219 | 3,146 | 1,487,168 |
| Ohio..... | 3,314,053 | 1,733,409 | 3,146 | 5,050,608 |
| Indiana and Illinois | 1,693,053 | 2,302,140 | 31,247 | 4,026,440 |
| Mich., Wis., Minn., Missouri, Iowa, Col., Ore., Wash. and California.... | 96,846 | 481,522 | 6,665 | 585,033 |
| Total for 1910. | 9,412,772 | 16,504,509 | 177,638 | 26,094,919 |
| Total for 1909. | 9,330,783 | 14,493,936 | 130,302 | 23,955,021 |
| Total for 1908. | 6,116,755 | 7,836,729 | 69,763 | 14,023,247 |
| Total for 1907. | 11,667,549 | 11,549,736 | 145,309 | 23,362,594 |
| Total for 1906. | 12,275,830 | 10,980,413 | 141,893 | 23,398,136 |

Of the total production of ingots in 1910 50,821 tons were made by the electric and various minor processes.

The following table gives by States the production of all kinds of steel castings in 1910, included in the totals given in the previous table:

| States—Gross Tons of Castings Only. | Bessemer. | Open- hearth. | Crucible and All Other. | Total Castings. |
|---|-----------|------------------|-------------------------------|--------------------|
| Mass., Conn., New York and N. J.... | 13,585 | 110,808 | 2,910 | 127,303 |
| Pennsylvania..... | 10,674 | 327,896 | 2,502 | 341,072 |
| Del., Md., Dist. of Columbia, Va., W. Va., Ala., La., Texas and Ohio..... | 12,256 | 165,158 | 3,146 | 180,560 |
| Indiana and Illinois | 10,722 | 185,973 | 5,539 | 202,234 |
| Wis., Minn., Iowa, Missouri, Colo- rado, Oregon and California..... | 11,098 | 75,516 | 5,049 | 89,663 |
| Total for 1910. | 58,335 | 863,351 | 19,146 | 940,832 |
| Total for 1909. | 33,814 | 601,040 | 21,388 | 656,242 |
| Total for 1908. | 20,579 | 311,777 | 18,894 | 346,220 |
| Total for 1907. | 33,273 | 746,525 | 23,319 | 803,117 |
| Total for 1906. | 32,601 | 719,893 | 21,215 | 783,709 |

Included in the 26,094,919 tons of steel ingots and castings made in 1910 there were about 567,819 tons of alloyed steel, of which about 538,462 tons were ingots and about 29,357 tons were castings.

Production of All Kinds of Rails

The production of all kinds of rails in the United States in 1910 amounted to 3,636,031 tons, against 3,023,845 tons in 1909, an increase of 612,186 tons, or over 20.2 per cent. The maximum production was reached in 1906, when we made 3,977,887 tons. The year of next largest production was 1910. Rails rolled from purchased blooms, crop ends, scrap, seconds, and rerolled and renewed rails are included. In the following table the production of all kinds of rails in 1910 and the four preceding years is given:

| States—Gross Tons. | Bessemer. | Open-hearth. | Iron. | Total. |
|---|-----------|--------------|-------|-----------|
| New York, New Jersey and Md. | 568,353 | 143,622 | ... | 711,975 |
| Pennsylvania. | 591,473 | 395,229 | ... | 986,702 |
| West Virginia, Alabama and Ohio. | 19,550 | 477,166 | ... | 496,716 |
| Ind., Ill., Cal., Wash. and California. | 705,066 | 735,342 | 230 | 1,440,638 |
| Total for 1910. | 1,884,442 | 1,751,359 | 230 | 3,636,031 |
| Total for 1909. | 1,767,171 | 1,256,674 | ... | 3,023,845 |
| Total for 1908. | 1,349,153 | 571,791 | 71 | 1,921,015 |
| Total for 1907. | 3,380,025 | 252,704 | 925 | 3,633,654 |
| Total for 1906. | 3,791,459 | 186,413 | 15 | 3,977,887 |

Included in the total of steel rails rolled in 1910 are about 261,534 tons of alloyed and electric rails, as compared with about 50,724 tons in 1909. About 234,145 tons of such rails were rolled from Bessemer steel in 1910 and about 27,389 tons from basic open-hearth steel, while in 1909 about 35,696 tons were rolled from Bessemer and about 15,025 tons from open-hearth steel.

Production of Wire Rods

The total production of iron and steel wire rods in 1910 amounted to 2,241,830 gross tons, against 2,335,685 tons in 1909, a decrease of 93,855 tons, or over 4 per cent. In 1910 the steel wire rods rolled amounted to 2,241,203 tons and the iron rods to 627 tons. In 1909 no iron wire rods were reported. Small quantities of steel copper-clad wire rods are included in the totals for the two years. The maximum production of wire rods was in 1909. The production since 1907 was as follows:

| States—Gross Tons. | 1907. | 1908. | 1909. | 1910. |
|--------------------------------------|-----------|-----------|-----------|-----------|
| Mass., Conn., R. I., N. Y. and N. J. | 233,687 | 200,113 | 280,101 | 246,669 |
| Penna., Ky., Ga., Ala. and Ohio. | 1,176,278 | 1,047,243 | 1,388,237 | 1,412,352 |
| Indiana, Illinois and Colorado. | 607,618 | 569,593 | 667,347 | 582,809 |
| Total. | 2,017,583 | 1,816,949 | 2,335,685 | 2,241,830 |

Production of Structural Shapes

Our statistics of the production of iron and steel structural shapes embrace forms which are rolled for strictly structural purposes, but they do not include plates, girders made from plates, concrete bars, or small angles, channels, etc., for use in the manufacture of bedsteads, agricultural implements, safes, fences, etc. For 1910 the figures are carefully limited to such forms of iron and steel as are well known to the iron trade for use in the erection of buildings, the building of bridges, viaducts, and ships, and like important uses.

The total production of strictly structural shapes in 1910 was 2,266,890 tons, against 2,275,562 tons in 1909. Of the total production in 1910 about 426 tons were rolled from iron against about 44,814 tons rolled from iron in 1909. The maximum production of structural shapes was in 1910, allowance being made for the omission in that year of the tonnage of small shapes which we now class with miscellaneous rolled products. The production since 1907 by States was as follows:

| States—Gross Tons. | 1907. | 1908. | 1909. | 1910. |
|--|-----------|-----------|-----------|-----------|
| New York and New Jersey. | 181,677 | 86,044 | 177,483 | 1,853,407 |
| Pennsylvania. | 1,458,507 | 810,146 | 1,642,074 | |
| Alabama, Tennessee and Ohio. | 47,074 | 31,287 | 60,213 | 40,433 |
| Indiana, Illinois, Wisconsin, Colorado and California. | 253,094 | 155,704 | 395,792 | 373,050 |
| Total. | 1,940,352 | 1,083,181 | 2,275,562 | 2,266,890 |

Production of Plates and Sheets

The production of iron and steel plates and sheets in

1910, excluding nail plate, amounted to 4,955,484 tons, against 4,234,346 tons in 1909, an increase of 721,138 tons or over 17 per cent. The maximum production was reached in 1910. The following table gives the production by States of plates and sheets in each year since 1907, excluding nail plate:

| States—Gross Tons. | 1907. | 1908. | 1909. | 1910. |
|--|-----------|-----------|-----------|-----------|
| New Eng., N. Y., and N. J. | 126,403 | 58,567 | 119,642 | 141,999 |
| Pennsylvania. | 2,651,166 | 1,531,066 | 2,384,185 | 2,808,883 |
| Del., Md. and Virginia. | 28,420 | 25,000 | 29,038 | 21,863 |
| West Virginia. | 153,599 | 159,714 | 211,012 | 225,649 |
| Kentucky and Alabama | 54,631 | 45,473 | 70,639 | 69,610 |
| Ohio. | 851,987 | 603,213 | 938,185 | 1,052,414 |
| Ind., Ill., Wis., Mo., Wyoming and California. | 382,626 | 226,660 | 481,645 | 633,066 |
| Total. | 4,248,832 | 2,649,693 | 4,234,346 | 4,955,484 |

In 1910 the production of iron plates and sheets was 91,118 tons, against 76,202 tons in 1909 and 54,033 tons in 1908.

Separating the production of iron and steel plates of No. 12 gauge and thicker from the production of iron and steel sheets of No. 13 gauge and thinner, total production of plates in 1910 was 2,807,728 tons, as compared with 2,379,098 tons in 1909, and the total production of sheets in 1910 amounted to 2,147,756 tons, as compared with 1,855,248 tons in 1909.

The production of black plates, or sheets, for tinning in 1910, included in the above, amounted to 712,137 tons, against 606,482 tons in 1909.

Production of Tinplates and Terne Plates

From reports received from the large producers and from estimates we have made for a few other producers we find that the production of tinplates and terne plates in 1910 amounted to 1,619,005,000 lb., or 722,770 gross tons, as compared with 1,370,788,000 lb. or 611,811 tons, in 1909, an increase of 248,217,000 lb., or 110,811 tons. Of the total in 1910 647,688 tons were tinplates, as compared with 526,722 tons in 1909, and 75,082 tons were terne plates, as compared with 85,237 tons in 1909. The total production of tinplates and terne plates in 1910 was much larger than in any other year.

All the tinplates produced in 1910 were made of steel, but of the 168,184,000 pounds of terne plates about 5,765,000 pounds were made of iron, as compared with about 8,054,900 pounds of iron in 1909.

Production of Miscellaneous Rolled Products

The production of merchant bars, skelp, spike rods, bolt rods, splice bars, hoops, bands, cotton-ties, strips, rolled axles rolled armor plate, and other forms of finished rolled iron and steel is given in the following table: rolled forging blooms and forging billets are included, but forged armor plate, hammered axles, and other forgings are not included.

| Articles—Gross Tons. | Iron. | Steel. | Total. |
|---|-----------|-----------|-----------|
| Merchant bars. | 1,074,163 | 2,711,568 | 3,785,731 |
| Bars for reinforced concrete work. | 4,645 | 236,464 | 241,109 |
| Skelp, flue, etc. | 350,578 | 1,477,616 | 1,828,194 |
| Splice bars. | 14,352 | 208,670 | 223,022 |
| Hoops. | ... | 262,214 | 262,214 |
| Bands and cotton-ties. | ... | 424,979 | 424,979 |
| Rolled forging blooms and forging billets. | 202 | 459,731 | 459,933 |
| Sheet piling. | ... | 26,598 | 26,598 |
| Railroad ties. | ... | 49,048 | 49,048 |
| Spike and chain rods, bolt and nut rods, etc. | 192,449 | 982,473 | 1,174,922 |
| Total for 1910. | 1,636,389 | 6,839,361 | 8,475,750 |
| Total for 1909. | 1,572,491 | 6,139,015 | 7,711,506 |

Production of Cut and Wire Nails

Cut Nails.—Our statistics of iron and steel cut nails and cut spikes embrace only standard sizes of nails and spikes cut from plates. They do not embrace railroad and other forged spikes, wire nails of any size, machine-made horseshoe nails, cut tacks, or hob, clout, basket, shoe, or other small sizes of cut nails. Cut spikes are always included with cut nails.

The production of cut nails and cut spikes in 1910 amounted to 1,005,233 kegs of 100-lb. each, against 1,207,597 kegs in 1909, a decrease of 202,364 kegs, or over 16.7 per cent. The following table gives the production by States in 1909 and 1910, iron nails being separated from steel nails for 1910:

| States—Kegs of 100 Pounds. | 1910. | | | 1909. |
|--|---------|---------|-----------|-----------|
| | Iron. | Steel. | Total. | Total. |
| Pennsylvania..... | 210,364 | 326,754 | 537,118 | 666,792 |
| West Virginia, Massachusetts and Ohio..... | | 275,352 | 275,352 | 384,947 |
| Kentucky and Illinois..... | 45,123 | 147,640 | 192,763 | 175,858 |
| Total..... | 255,487 | 749,746 | 1,005,233 | 1,207,597 |

The maximum production of iron and steel cut nails and cut spikes was reached in 1886, when 8,160,973 kegs were made.

The following table gives the production by States of cut nails and cut spikes from 1907 to 1910 in kegs of 100 pounds:

| States—Kegs. | 1907. | 1908. | 1909. | 1910. |
|---------------------------------|-----------|---------|-----------|-----------|
| Pennsylvania..... | 664,998 | 525,169 | 666,792 | 537,118 |
| West Virginia and Indiana..... | 175,549 | 285,554 | 364,947 | 275,352 |
| Massachusetts and Ohio..... | 102,333 | | | |
| Kentucky, Illinois and Cal..... | 166,258 | 145,459 | 175,858 | 192,763 |
| Total..... | 1,109,138 | 956,182 | 1,207,597 | 1,005,233 |

Wire Nails.—The production of wire nails in 1910 amounted to 12,704,902 kegs of 100 lb., as compared with 13,916,053 kegs in 1909, a decrease of 1,211,151 kegs, or over 8.7 per cent. Steel wire nails only were made in both years. The maximum production was reached in 1909. The following table gives the production by States from 1907 to 1910 in kegs of 100 lb.:

| States—Kegs of 100 Pounds. | 1907. | 1908. | 1909. | 1910. |
|------------------------------------|------------|------------|------------|------------|
| Mass., R. I. and Connecticut..... | 263,487 | 134,170 | 195,298 | 175,730 |
| New York, N. J. and Pa..... | 4,787,311 | 4,214,681 | 6,113,353 | 5,457,099 |
| Ky., Ga., Ala., Iowa and Ohio..... | 3,057,620 | 2,787,140 | 3,470,001 | 3,503,433 |
| Indiana and Illinois..... | 2,941,216 | 2,812,105 | 3,449,106 | 2,906,274 |
| Wis., Colorado and Cal..... | 681,410 | 714,876 | 688,295 | 662,366 |
| Total..... | 11,731,044 | 10,662,972 | 13,916,053 | 12,704,902 |

The following table gives the total production of cut and wire nails from 1901 to 1910:

| Years. | Kegs. | Years. | Kegs. |
|-----------|------------|-----------|------------|
| 1901..... | 11,346,062 | 1906..... | 12,675,886 |
| 1902..... | 12,616,008 | 1907..... | 12,840,182 |
| 1903..... | 11,067,554 | 1908..... | 11,619,154 |
| 1904..... | 13,210,023 | 1909..... | 15,123,650 |
| 1905..... | 12,212,441 | 1910..... | 13,710,135 |

International Exposition of Inventions

America's first International Exposition of Inventions will be held in St. Louis the week beginning September 11, 1911, in the new Coliseum Building. This building is specially adapted for the handling of large expositions. Manager F. W. Payne states that the interest manifested by manufacturers and business men throughout the country indicates that this exposition will be a pronounced success.

It will give inventors an opportunity of bringing their new inventions directly before the general business public for their mutual benefit. A visit to the exposition will disclose to a manufacturer many new ideas and devices, some of which, perhaps, may prove to be the very thing he has long searched for.

Such an exposition is one of the annual events in England, but has never before been held in this country. When the matter was first discussed, the selection of the city in which it should be held was a problem, but after carefully investigating the advantages and disadvantages of different cities it was decided that St. Louis was preferable on account of the central location. The exposition will be international in its scope. Several entries have already been made from foreign countries and many visitors are expected to come from abroad to study the new devices which will be shown.

No. 2 furnace of the Warwick Iron & Steel Company, Pottstown, Pa., was blown in July 27. For a little time the furnace will be run on foundry grades.

The Munning-Loeb Company, manufacturer and designer of electroplating and buffing equipment supplies, is located at Matawan, N. J., instead of Matapan, as incorrectly printed in *The Iron Age* of July 27.

Personal

A. I. Findley, editor of *The Iron Age*, arrived in New York from Europe on Tuesday and has resumed his duties.

W. P. Snyder, president of the Shenango Furnace Company, Pittsburgh, Pa., will sail for Europe August 10, to be gone two months.

William S. Pilling, of Pilling & Crane, Philadelphia, Pa., returned August 1 from a three weeks' vacation. T. I. Crane, of the same firm, sailed August 2 for a six weeks' trip abroad.

P. S. Smith, secretary of the J. D. Smith Foundry Supply Company, Cleveland, Ohio, has taken charge of the company's Eastern offices, 378 Ellicott Square Building, Buffalo, N. Y., from which point all Canadian and Eastern trade business will be handled.

W. H. Whiteside, who recently resigned the presidency of the Allis-Chalmers Company, has been elected president of the Stevens-Duryea Company, Chicopee Falls, Mass., to fill the vacancy caused by the resignation of Irving H. Page who has been elected chairman of the board of directors and treasurer of the company. The official statement is made that the company does not contemplate the purchase of nor consolidation with any other automobile interests.

The Inland Steel Company's Annual Report

Stockholders of the Inland Steel Company, Chicago, held their annual meeting July 25 and received the report of the operations of the company, showing that the net profit for the year, after deductions for depreciation and for the exhaustion of minerals, was \$1,598,624. The financial statement for the year ended June 30, 1911, is as follows:

| | |
|---|-------------|
| Net earnings from operations after deducting \$714,452 for maintenance and repairs of plants..... | \$1,798,437 |
| Other income..... | 1,981 |
| Total profit for year..... | \$1,800,419 |
| Less— | |
| Provision for depreciation and renewal of plants..... | \$150,000 |
| Provision for exhaustion of minerals..... | 51,795 |
| | 201,795 |
| Net profit for year..... | \$1,598,624 |
| Deduct— | |
| Interest on bonds..... | \$159,750 |
| Dividends paid..... | 594,344 |
| | 754,094 |
| Surplus, year ended June 30, 1911..... | \$844,529 |
| Add premium on capital stock paid for..... | 112,000 |
| Add previous surplus..... | 2,416,417 |
| Total surplus per balance sheet June 30, 1911..... | \$3,372,947 |

The H. C. Frick Coke Company, Pittsburgh, will not erect coke ovens on the coal property recently purchased by the United States Steel Corporation from the Monongahela River Consolidated Coal & Coke Company. This property is located in Washington County, Pa., adjacent to coal properties owned by the Jones & Laughlin Steel Company, Lackawanna Steel Company and Pittsburgh & Westmoreland Coal Company. Thomas Lynch, president of the H. C. Frick Coke Company, states that the coal lands recently purchased in that territory will probably not be opened up for some years.

The Chamber of Commerce of the State of New York, 65 Liberty street, New York City, has established a system of commercial arbitration which will be conducted by a Committee on Arbitration, of which Charles L. Bernheimer is the chairman. The purpose is to offer the means to both members and non-members for a proper and satisfactory adjudication of commercial controversies, thus eliminating the many tedious and vexatious delays incident to trials at law. The report of the special committee has been issued in pamphlet form and gives in full the details of the plan.

The Cincinnati Steel Castings Company, 948 to 960 Kenyon avenue, Cincinnati, Ohio, is erecting a new foundry at Queen City avenue and Spring Grove for the manufacture of light and medium-weight castings by the converter process.

International Iron and Steel Association

The Proceedings of the Conference at Brussels, as Reported by Stenographer—Views of European Manufacturers as to the Sort of Agreement Possible

As was indicated in our report of the Brussels iron and steel conference of July 5 and 6, given in *The Iron Age* of July 20, representatives of the press were not admitted to the sessions. A press committee consisting of one representative from each country was instructed by the convention to give to the press, after each day's session, "such information as should be deemed wise." It was also decided that later a full stenographic report of the proceedings be prepared for publication. The press committee's perfunctory bulletin of the action taken was duly given out, together with Judge Gary's address on taking the chair. The secretary of the convention, Wm. B. Peat, of a London firm of accountants, has made public in the past week the full report of the conference. We publish it verbatim, with the exception of the portions already given in these columns; namely, the address of Judge Gary, the names of delegates and the names of representatives from the various countries appointed on the committee to frame and report a plan of international organization, if such association is decided advisable.

We reprint the stenographer's full report—in spite of the redundant and rather tiresome expressions of compliment and protestations of high ethical purpose contained in some of the addresses—as best affording an idea of what actually took place at the Brussels meeting. So many erroneous statements have appeared as to the purpose of its promoters and such unwarranted construction has been put upon the action taken that readers of *The Iron Age* are entitled to put their own interpretation upon the motives of those who participated and draw their own conclusions as to the figure any association likely to be formed on the lines indicated would cut in international iron and steel markets.

The report, after referring to the election of Judge Gary as chairman of the convention and of Wm. B. Peat as secretary, and after giving the names of the Credentials and Press Committees, together with their reports, which were adopted, presents in full the address of Judge Gary. Following the address the proceedings were as given below:

THE CHAIRMAN.—Gentlemen, I should now like to call upon a few of the gentlemen whom I know and whom I may designate to address themselves to this subject. Without previous consent and acting with what I may call arbitrary spirit, knowing that Sir John Randles has to leave us very soon, and having a great desire to hear from him on the general subject, I am going to ask him to speak. I now have pleasure in calling on Sir John Randles to speak on behalf of England.

Sir John Randles

I can only respond to the call by trying for a moment or two to speak. One of the factors in the situation to-day is this: I take it that, while we are gathered from many countries and in one sense may be representative of many interests, I am only entitled to speak for myself. Thus I am not entitled to speak for any group or any body of men, so that what I say must be regarded as coming solely from myself. I had the pleasure of being in the United States on the occasion to which Judge Gary has referred. On that occasion I had the advantage of listening more than once to the enunciation of the views which Judge Gary has laid before us to-day, to which I, at any rate, am absolutely a convert. I believe that in the foreshadowing of the principle of live and let live much may be done in relation to our industry. It would be vain and futile for any individual manufacturer, or any section of manufacturers, to think that he could, with advantage to himself, monopolize the industry in his own sphere or any other sphere without regard to his competitors in the business.

The principle that I take Judge Gary as laying down is this: There will always be competition in the world—our interests are diverse—but so far as we can come together—there is no danger in meeting to consider and to discuss the commercial and the mercantile side of our industry—we should continue to gather together for the common good. I may illustrate that possibly by saying when I was in the United States I saw many and various improvements in manufacture on what I was familiar with in my own concern. I could not adopt all those suggestions of improvement; but Judge Gary allowed me to go into the office of his company and there I was shown and had explained to me how those who are more or less competitors come together. I was shown how, once a month, the various managers of the different blast-furnaces, for instance, belonging to the United States Steel Corpora-

tion, were gathered together in New York and they had laid before them cost sheets, particulars of all that appertains to the manufacture of pig iron. There was a full and free and ample discussion between those who were particularly interested in the blast-furnace management—nobody else—but that particular section met together and discussed with great advantage to all concerned. When I got home the managers asked me if I had any improvements that I could bring before them, and I told them that I thought they would mostly require a very large amount of capital which was not at our command. But I said perhaps one of the most advantageous things I could bring over was to tell them exactly how to deal with different questions referring to blast-furnace management. I introduced this system and brought all the departmental managers together, who met monthly now to compare notes and help the more backward to attain the standard of the best. I can assure this gathering that there has been a very perceptible advantage in the percentage of reduced cost in the manufacture from the gathering together of those men who are interested in blast-furnace manufacture at our works. It had a beneficial effect which was measurable in pounds, shillings and pence; and that is how it appeals to me, because, after all, our object is to make profits.

I thought to myself, if this plan of bringing together the men who are engaged in that particular limited branch of the industry is so beneficial, surely we may have greater advantage by bringing together those who have to do with the control of these large concerns represented here to-day.

Let me give another illustration. It is not only a question of economy of manufacture, it is largely a question of the disposal of our product in the most economical manner possible. It is quite possible, for instance, it might cost to make a ton of any commodity you like—pig iron, rails or plates, or any material—in the United States or in England, exactly the same amount of money to produce your article. There might be a market to which it would cost to get our material—6 shillings a ton, we say—\$1.50 a ton to get our material to the market. It might cost Judge Gary 10 shillings a ton to get to that market—\$2.50. Surely, it would be common sense if I were meeting Judge Gary in an assembly of the description he wishes to establish, it would be a very reasonable thing for me to say: Judge, it only costs me \$1.50 to get to the market, it costs you \$2.50. Why should you seek

to come into my market? There is another market over there where you can get for \$1.50 your goods carried where it costs me \$2.50. You go and sell your commodity in that market and let me sell my commodity in this market. In that way there is an absolute saving to the industry of \$1 a ton if they meet together and talk common sense to each other in that manner. There is no obligation on me to tell the Judge to accept my proposal; and surely if we talked together and exercise commonsense we shall find no danger in the gathering which is contemplated.

These are to my mind, the results which I should look for as the outcome of our association to-day. There must be a practical good come of it or it will eventuate in smoke. But I take it, if such an association of manufacturers, which is world-wide in its range is formed and established by our meeting together we may possibly find some very material advantage, and if we do nothing else, we shall lessen the friction and we shall be able to pour oil on to the disturbed parts, and shall meet with common respect for our common industry, feeling at any rate we are no worse friends, and that we are indeed better neighbors. I take it that those were the objects that Judge Gary thought it worth while to seek to lay before us, and so far as I can understand, they give me an opportunity of meeting my fellow manufacturers without any obligation or binding agreements, which face me and deprive me of my perfect liberty or my individuality. I look forward to the time when there shall be a diminution of the friction—when there shall be access of good neighborly feeling, and when we all shall be able, as the Judge told us the other night, not to take each other by the throat but to take each other by the hand and wish each other Godspeed.

THE CHAIRMAN.—I call upon Baron von Bodenhausen to address the convention on behalf of Germany.

Baron von Bodenhausen

I am asked to respond to the words which Judge Gary has addressed to us, and I am very happy to do so, the more so as I have been acquainted with Judge Gary for several years. I have had frequent opportunity of meeting him and I may say that I fully and wholly share the views he has laid before you in trying to promote friendship between all of us. Before I go on to say exactly what we think about the proposition which the Judge has laid before you, I want to make a very formal statement in the name of my German friends in order to prevent from the very beginning any misunderstanding that might spring up, and this statement is as follows: The newspapers have written a good deal of stuff about our meeting to-day and they have spoken about dividing up the world between us all; I therefore think that we ought from the very beginning to state as formally as possible that this is not the object of our meeting to-day. I may go further. I may say that if my friends and I had known that this was not to be the case to-day I am pretty sure we should have asked you to excuse us from being present on this occasion. And the very reason for this is that our Verband is to expire next year in the early spring, so that if any resolution of that sort of agreement should be laid before us we would simply have to tell you, We are very sorry, but we cannot.

After having made this statement in a negative sense, I want to come to positive facts. The first fact I want to point out is how very glad we are that in this movement of promoting friendship between us, it is our actual chairman, Judge Gary, who has taken the leadership. It was in the fall of last year, when we were in New York and had our last meeting, that Judge Gary raised the question whether we would like him and the American group to take this leadership and I immediately got up and said: I do not think there is any man more suitable to do it than Judge Gary, and I want to repeat it on this occasion, and I want to say to Judge Gary that the whole German group entirely trust him, and we will be ready to follow his leadership in the way he has pointed out to us. Now, to come to the point. Judge Gary suggested that we should appoint a committee that would act by itself and report later on to all of us, and see whether we could convoke a meeting. We are entirely willing to follow this advice and to adhere to this proposition; and even without giving this committee any certain line of going on, we think that the committee

can come to a very remarkable and very useful work, useful to all of us. It was in New York that I once formulated that very short sentence of the idea which I had got of our coming together on days like this one; and, although I repeated that sentence again in London the other day, I think that, as I believe it to be right, I will repeat it again to-day to you. It is that, according to my opinion, to know your customer personally is one-half of your business, and, as we are learning to know now, that to learn to know your competitor personally and to make friends with him is the other half of your business.

I think that if we take this short sentence as the leading sentence and spirit of our meeting to-day, that will keep us all right and show us the right way. We do not know what may come out of the deliberations of the committee we are going to appoint to-day; but never mind, it is sure that something must come out of it. It is somewhat the same as the Court of Peace at The Hague. You do not know what is to come out of that wonderful organization, but you are quite sure something must come out of it in the way that misunderstandings springing up as they might do every day between the different nations will, by-and-by, and more and more from day to day, be settled by the Court of Peace. Let us look at our committee as a Court of Peace, and I think we shall do very well in doing so. Judge Gary, in sending out invitations to the different delegates, you ended your very kind and friendly letter with the words that you and your American friends wanted to grasp the hands of your brethren across the seas. Well, I suppose that our being present here to the number of 20 shows you how very heartily we have taken up this proposition of yours. You tender us your hand—we take it—and we shake it most heartily and we hope that it will help to make us all as we are here together, friends. Let me finish my short remarks with this wish: let us all, as we are round these tables, be good friends, and you may be assured, more, you may be absolutely certain, that it will be to the benefit of all of us.

THE CHAIRMAN.—I call upon Sir Hugh Bell, on behalf of England, to address the convention.

Sir Hugh Bell

I cannot claim quite the position Sir John Randles had, the advantage of taking to himself when he addressed the meeting, and I am very glad, sir, that you chose him to speak first on behalf of the English group, since it enabled him to express as he did in most excellent terms the desire which has also been reiterated from the other end of the table, that we should be understood in the main to be proceeding on our individual opinions and that we did desire—and it was upon this point that Baron von Bodenhausen dwelt—to retain as largely as possible our independence. Sir, I have not quite that position of independence because I am charged by the meeting of the English group to lay before this meeting the resolution which they passed yesterday evening on considering the question, and that resolution is couched in the following terms: "This meeting of the English group views with sympathy the attempt to establish a more friendly commercial basis between the iron and steel manufacturers of the world." The meeting which I am addressing will see that that is exactly on the lines of the address which your honor has just delivered to the meeting here assembled. You have proposed to us that we should consider what co-operation ought to be established in this great and most important—I venture to say, the most important—of the world's industries. In support of that proposition I venture to urge on this assembly one or two rather more general considerations than even you have touched upon or have been mentioned by either of the other delegates. I would like to remind the meeting that the tendency of commerce over our time has been steadily toward larger aggregations. In every branch of industry that is found to be the case. The blast furnace is four or five times as big as it was when I was a boy. The rolling mill is much more important than it was then; and if I turn to the other industries I find the same principle is obtaining. It is impossible for us to abstract ourselves from the conditions under which we live. It is our duty therefore to guide these irresistible forces rather than to attempt to stem them.

You have alluded, sir, I think, with very great aptitude and tact, to the fact that already in other directions the great industries of which we are the representatives have found it desirable to form association on the technical side of their work. The Iron and Steel Institute, which claims for itself not a British title but an international title, a title which its membership shows it richly deserves; the similar German technical institution; and your own American institution of a like character, are three notable examples of the necessity in which we have found ourselves as technical men for interchange of opinion where it is possible. It has occurred to you, sir, and we thank you for it, to say that that principle which we have applied to the technical side of our business ought also to be applied to the commercial side. I think no one can doubt if we conduct ourselves in the reasonable and proper spirit indicated by your observations, we shall not only find no opposition to our proposed association, but on the contrary the world will thank us as much as it is bound to thank us for those other technical institutions. It is in no spirit of selfish aggrandizement that we, any of us, approach this question. We all of us look to it, I imagine, entirely from the point of view of improving those relations which we have established with the outer world. I cannot refrain from congratulating Baron von Bodenhausen for the admirable way in which he has expressed himself in a tongue which I am bound to call foreign to him but in which he expresses himself almost as an Englishman. And I especially congratulate him on the admirable aphorism with which he has presented the iron and steel industries of the world, that it is one-half of the battle to know our customer and the other half to know our competitor. The more we get to know them the more we get to esteem them. We find that the persons with whom we had been in an attitude of hostility and opposition become our intimate friends, and that we are able to exercise that discrimination to which you have referred and to which others have also referred in a manner which is of advantage to us and to the world at large. The other evening, in London, speaking entirely from my heart, I said that I had never been able to view with jealousy or hostility the prosperity of my neighbor, even though he was my competitor. If that is so, I need hardly say, and now I speak entirely for myself, and I ask you to couple no one with me, that I hope everyone will agree with me that that is so—it is obvious. I for one approach such an organization as that which you are approaching here with the fullest sympathy and I can give my entire personal adhesion in the resolution which I was asked to lay before the meeting this morning. I sincerely hope when the time has elapsed to which you have referred, when the committees which I trust will be formed have had time to consider the question, they may report to us that they see (amid no doubt many difficulties which we must not undervalue or disguise), no reason why we should not on the commercial side of our industry establish the same sort of organization which exists on the technical side. I should be the last to underestimate those difficulties. In my own country they are of a very remarkable character and will require the very greatest tact and care in their handling. But, sir, if it were not a difficult world in which we live we should not be occupying the position—you, gentlemen, let me say, would not be occupying the position in which your intelligence and skill have placed you. Another difficult problem is presented to you for solution. I feel sure you will tackle it with the same skill and industry which have characterized you in what has gone before. I would like in conclusion to remind the meeting—I hope, sir, I am quite in order in what I am going to remind the meeting of—that this committee can only be regarded as a sort of constituent authority to consider whether the suggestions you have made to us can be followed, and if so, how they should be formulated, and what measures should be taken to make the plan effective.

Till that report has been presented we shall be no more committed to anything than we are now—namely, to what on behalf of the English group I commit myself, a sincere sympathy with the objects which you have expressed to us, and entire readiness to the best of our ability to come within the conditions which are going to be laid down. I have to thank you for permitting me on behalf of the English section to make this statement.

THE CHAIRMAN: I call upon Mr. Greiner, of Belgium.

A. Greiner

I will be very brief, because what I have to say at present is only that we agree with the views expressed by the chairman, by Baron von Bodenhausen and Sir Hugh Bell. After that, I have to say that as I have to make a speech to-night I will not repeat it at present, because it would be to-night a very bad ricochet speech! I only wish to thank the Judge and our American friends and all that are present here, that you have chosen Brussels, the capital of this small industrial country, as being the city of your to-day's meeting, and I hope you will enjoy yourselves and profit by it.

Mr. Trasenster (Belgium)

As it is very difficult for me to express myself correctly in English, I ask our chairman, Judge Gary, to be good enough to allow me to say a few words in French, which will afterwards be translated into English. The speech of our esteemed chairman we have just listened to and the very cogent arguments he has put forward have convinced us of the necessity of seeing each other, of meeting, and of the possibility of arriving at a result which, at first sight, as he said himself, appears somewhat ideal and difficult to put into practice. It is certain that the idea, so broad and so vast as that which Judge Gary has put before us, will encounter many difficulties, but I do not believe, nevertheless, that it is impossible to realize. With the good will we observe here, on the one hand, in the presence of the representatives of the industries of all countries, and on the other in the feeling with which each of us is animated, I think that however difficult this result may be to achieve we shall nevertheless reap some fruit from this gathering.

The understandings of twenty years ago were very difficult to realize, even in each particular country, but the enormous development of industry, of each of our industries, makes it almost our duty to co-operate in order to avoid the disasters which would follow if a fight to the death were to take place between us.

It is this feeling, I think, which has prompted us all to gather to-day in such numbers around Judge Gary. Certainly the task is a difficult one, but it is not impossible, and I think we should take our example from what is happening in the United States. For a long time past we have had our eyes directed toward the United States which has taught us many new methods and has effected great progress in many industries, and especially in the iron and steel industry. First it was technical progress, but for some years past they have realized a thing we have never been able to secure, that is the *entente cordiale* among their works. It is this *entente cordiale* which enabled them at a certain moment during the crisis to reduce the output by one-half, and maintain the prices at a reasonable rate, while maintaining the workmen's wages likewise at a paying rate.

True, in order to arrive at this result, the *entente cordiale* referred to by Judge Gary was necessary; but his perseverance also was needed, because in a great country like America this task was as difficult to realize as that with which we are confronted to-day.

Gentlemen, if we desire to succeed in our work it will suffice for us to follow the example set us by Judge Gary in creating the corporation which produced such happy results in the United States. I trust that we may realize the same thing here.

[Mr. Trasenster's remarks are given in French in the report. The translation is ours.—EDITOR.]

THE CHAIRMAN: Mr. Dreux will address the Convention on behalf of France.

A. Dreux

We came to this meeting only with a general idea as regards its object, and we have not been able to confer between each other as regards the proposition that has been put forward by the president, Judge Gary. I have listened with pleasure to his speech with regard to the question of the organization of the association and the friendship which exists between the iron and steel makers. On that basis I may say that the French group will agree willingly to such an organization so well defined by Judge Gary and by the gentlemen who spoke after him. In fact, the French point of view is not very different from that

of the German representatives. I might refer to what fell from Baron von Bodenhausen, as it just expresses the point. I must ask only to reserve the decision of my colleagues until the commission is constituted, on the rule and basis of this agreement. But on the principle we quite agree and we are most thankful to Judge Gary for the valuable initiative he has taken by introducing this important subject for our discussion.

W. Kestranek (Austria-Hungary)

I think I would best follow the advice of Judge Gary not to compete in an unfair manner when speaking in English. Then, I shall not make unfair competition with the English language. But we are not so far—our agreement is not settled, and so may I make unfair competition! Gentlemen, I think I have to say first that there are many difficulties in our way, but remember the words: "Rome was not built in one day," and so I think our Rome, the Pope of which is Judge Gary, will not be reached in one day. I think we are in a situation like the first Christians—we have to avoid now the public. We gather at the beginning like the first Christians in the catacombs, because the public believes that we wish to do something which is unfair; but when we are in the position of the first Christians—I dare say the customers are the Romans; they are cruel—and when Judge Gary says we must have very much more patience and courage, then also I have the courage to lay before you a proposition. I am afraid I shall be a martyr whose suggestion may not have some echo here, and in spite of that I venture to lay before you a suggestion. Austria is not so much interested in these questions as other countries, but, as you know, the smallest dogs bark the loudest; and so I will tell you we have to come to a more practical basis, and I think it will not be sufficient to appoint a committee. I think we have to outline something for this committee—to sketch the outlines—and so I venture to add some sentences. I think the nucleus of the solution is given here in this program, which nominates this meeting the meeting of the International Iron and Steel Association. Gentlemen, there is no International Iron and Steel Association but we will settle this association, and so I think it will be best to give this committee an outline of what the meeting wishes, and I have the courage to do it. Let me read a little sketch which I made about this thing. I think in that sketch the constitution of this new Iron and Steel Institute will be as follows:

I. The society shall be designated "INTERNATIONAL IRON AND STEEL INSTITUTE."

II. The object of the Institute shall be to serve as a communication between members of the iron and steel trades of all countries, concerning all matters bearing upon their interest.

III. The Institute shall consist of active members and honorary members, who shall be more than 24 years of age. Active members shall be persons who are practically engaged in undertakings of the iron and steel industry; it may be as owner, partner, member of the board of directors, manager or in any other leading position. The membership of an active member expires when the member retires from his practical activity. The number of honorary members shall not exceed fifty.

IV. The Institute shall be managed and controlled by a Council consisting of members elected from the list of active members of the different countries, in proportion to the export trade of the respective country. Every two million tons annual export of iron and steel and manufactured iron shall give the right to the election of one delegate of the respective country. A surplus of at least one million tons gives the power of the election of one delegate more. Countries having less an annual export than one million tons shall have likewise the right to elect one delegate, if this country's annual production of pig iron is at least 500,000 tons. In such a way all countries of some importance in the iron trade shall be represented in the Council.

V. The Council elects one president, three vice-presidents, one treasurer and a secretary. These officers of the Institute, like the members of the Council, shall be elected for two years and are eligible for re-election. The president and the vice-presidents are also president and vice-presidents of the Institute. These officers have to belong to different countries. The Council has the power to elect from its members standing or temporary committees for the treatment of special matters. The president shall be *ex officio* chairman of all these committees.

Sir HUGH BELL.—Mr. Chairman, I hope you will not

think I am out of order if I ask your permission to move on a point of order. It seems to me that Mr. Kestranek, whose observations are of a most valuable character, is rather too far ahead, and the matter which he has submitted to us would be better referred to the committee, of which I hope he will be a member, than to this rather larger meeting, and therefore I suggest that this portion of the proceedings should be adjourned.

JUDGE GARY.—The chair will have to rule that the point of order is not well taken. I think it is quite right on the part of anyone to make comments as part of his address and suggestions as to what he thinks ought to be done. I doubt whether that would be at all in contradiction to our general plan. Certainly what was being said is very interesting. (Applause).

Mr. KESTRANEK.—Gentlemen, you see, I am the first martyr!

Sir HUGH BELL.—But struck by a friendly hand!

Mr. KESTRANEK.—Yes, at the end! But I wish only to tell you some words more. I think what Baron von Bodenhausen said, and the other gentlemen, was rather too much on the commercial part of the question—the mercantile part. But, please, gentlemen, we have other mutual interests than commercial and mercantile. Please let me exemplify: The question of the specifications where there is no commercial interest, and it is a very different and a very important question, because the cruel consumers nail us with these specifications—or, as Judge Gary said, the welfare of the employees or the sociological question. They are not commercial questions, but they are questions of importance, and it is of the greatest importance to us to know the opinions of our colleagues about these questions. We do not come together only for the commercial question, but we come here to speak about these questions. Please think about that, and you will find less difficulties than you see now.

Count de Zubiria (Spain)

Excuse my inability to speak in your language, and I only desire to say that I quite approve of what has been expressed here to-day. I am a representative of a country small in its production, and I must therefore be very short in words, too. I desire to state that we agree entirely with the conclusion contained in Judge Gary's address, and that we are quite willing to give our co-operation, and as Baron von Bodenhausen, of the German group, said, that there were two parts in this question—business and friendship—I offer now our friendship to all of you.

Mr. Witmeur (Russia)

Gentlemen, it would be difficult for me to speak in the name of the Russian group, because it does not exist, from the point of view of export at least. But from a general point of view it is perhaps of interest to say that the Russian metallurgical industry is concentrated chiefly in the south of Russia, and that this industry in the south is to some extent the offspring of the Belgian industry. Several godfathers of the industry in the south of Russia, however—in particular Messrs. Greiner, Trasenster and Lacanne—have already expressed their approval of the idea put forward by Judge Gary. Gentlemen, Russian industry is young, and the seeds sown by Judge Gary being good and the earth fruitful it is certain that the tree will one day be strong and flourishing.

Charles M. Schwab

It would seem superfluous, Mr. Chairman and gentlemen, and quite unnecessary for any member of the American group to express any opinion here, after listening to Judge Gary, who very fully expressed all our views, with whom we have been in close association for some years, and in whom we have the greatest confidence. He expounded the principles in America a few years ago that have brought forth results that few of us accustomed to the older methods of business ever believed possible. I personally was brought up in a school that had a widely different manner of doing things, as many of you know, and it was with a good deal of reluctance that I was brought to believe the fulness of this theory could be realized. But the results of American manufacture have been such that I am probably one of the strongest American advocates of Judge Gary's theories with regard to this matter. There is little left to me to say beyond that we

are in hearty accord with this suggestion to appoint a committee for the consideration of these questions. I believe that with patience and co-operation very great good will ultimately come. We think the prosperity of our great industry beyond the Atlantic is sufficient proof of the good of working out this theory. Speaking for myself, personally, and those of my American associates who cannot speak here, I can come to no other conclusion, and we are in hearty accord with the entire proposition.

T. J. Drummond (Canada)

As I have seen the growth of the Judge's theories and the principles broadening out in the United States and working to the general good, I can only give the heartiest approval to the proposition and say that as far as we are concerned we are ready and willing to co-operate and wish the movement Godspeed.

James A. Farrell

I wish to embrace the occasion to congratulate the Belgian delegates for their hospitable reception and particularly to felicitate our distinguished friend, Monsieur A. Greiner, of the great works of Cockerill, on the effective position held by the Belgian steel industry in the world's markets. I cannot refrain at such a moment as this from testifying to the esteem in which he is held for his uniform courtesy to his colleagues in the steel industry which has left an impression which time will not eradicate.

The importance of this meeting can hardly be overestimated; it meets for the discussion of scientific, economic and ethical subjects, for the dissemination of information, for the interchange of ideas, and it is believed that the organization of an International Iron and Steel Association to supplement the general work of the various iron and steel institutes and associations which exist in all of the steel-producing countries would tend to stimulate international intercourse. The educational value of gatherings such as this, where matters pertaining to the industry may be discussed in their various aspects, is very great and conducive to universal welfare. For upon the shaping of the relations obtaining between the members of the great iron and steel industry depend to a large extent its destinies, and these relations are seldom strained but almost without exception improved by mutual acquaintance; for as soon as we become convinced that there is no elemental antagonism of interests, but that on the contrary their interests are reciprocal, a co-operation along the line of the whole development of the industry will be the natural result.

The assembling of this congress, comprising as it does delegates from the great steel-producing countries of Great Britain, Germany, France, Belgium, Austria-Hungary, Russia, Spain, Italy and the United States, takes place at a time when the mind of the world is occupied with the great movement for promoting international peace and conciliation, and relations of comity and good fellowship between nations. The Hague Conference has gravely declared that the maintenance of peace is the supreme duty of nations. In his address last December before the American Society for the Judicial Settlement of International Disputes, President Taft said:

If we now negotiate and put through a positive agreement with some great nation to abide the adjudication of an international arbitral in every issue which cannot be settled by negotiation, no matter what it involves, whether honor, territory or money, we shall have made a long step forward by demonstrating that it is possible for two nations at least to establish as between them the same system of due process of law that exists between individuals under a government.

In response to the demands of public opinion, governments and public-minded citizens of all countries are advocating plans for international peace and arbitration, which not long ago were regarded as impractical and visionary. Concurrently, momentous changes have taken place in the steel industry, and the belief now prevails generally in that industry throughout the world that commercial peace is as necessary to the success and stability of the industry as the practice of settling international controversy by the sword is costly.

The movement for industrial harmony and conciliation goes hand in hand with the world-wide effort being made for political peace, since whatever may be the vocal professions of those contending for political peace and arbitration, it would indeed be a fallacious belief if it were not

conceded that one of the greatest and most important essentials to co-operation between nations is the establishment of commercial peace and comity and good fellowship through the efforts of such assemblages as this, representing as it does influential people of many nations, engaged in one of the most important industries of the world, who believe that the fundamental principles which should regulate the rights and duties of nations, in their mutual intercourse are those of evolution, which can best be broadened by the same application of those principles to the rights and duties governing the economical processes of production, distribution and consumption of their products.

The prime object of this international congress assembled here to-day is, as I understand it, to consider economic conditions, and to study the fundamental principles underlying co-operation among the steel manufacturers of the world. Such a convention pre-supposes a belief that industrial peace and co-operation are just and profitable both to the consumer and producer alike, and that the world at large would gain more from the exercise of a constructive policy that protects trade and develops commerce than from militant trade rivalry in the world's markets. Such a policy is, of course, diametrically opposed to the erroneous notion which has been suggested in some quarters, that it is proposed to control prices or hamper commerce.

The cultivation of amicable personal as well as co-operative relations is a step towards industrial peace. Thus this Brussels Conference may be regarded as the inauguration of a new era in industrial and commercial history, and if it is recognized that war between nations is obsolete and moribund then it must be recognized that destructive competition in trade channels is like war, and dislocates the economic processes of production, distribution and exchange the world over. Extremes are to be avoided in the business world as they are to be avoided between nations, in order to obtain the greatest good to the many, and if war is a pathological process so also is destructive competition, which brings about cyclical fluctuations of trade and periods of unemployment.

The export commerce of the world in the steel trade now amounts to some 14,000,000 tons per annum, of which the United States is doing about one-seventh, and with a total annual production of some 30,000,000 tons of pig iron her shipments of finished material to export markets is now at about the rate of 2,000,000 tons.

In more respects than one this gathering of the International iron and steel trade presents an interesting, not to say unique, spectacle. Americans come here with the most friendly spirit. We consider it a privilege to be invited to take part in your deliberations, to exchange opinions and to cultivate a friendly intercourse.

To people who are unfamiliar with the present-day economics of the steel industry, the supposition is that most of our time is occupied in trying to make money out of the consumer. Such things as the development of friendly co-operation with our competitors with a view to creating stability of trade, to study the great changes, both scientific and economic, which have come over iron and steel manufacturing conditions throughout the world, are of minor importance to the doctrinaires. Such an inference disregards the great increase in the cost of manufacture. It matters not whether these changes are the result of one condition or another, the vital point is that, due to many factors, among which are the decrease in the average iron content of the ore from year to year, the rise in transportation charges to many markets, the maintenance of a fair rate of wages, the decrease in the effectiveness of a day's work—these and other considerations, such as the evolution of new processes requiring the dismantling of costly plant to keep up with the times, render it natural under all of these circumstances that the steel manufacturers of all countries should consider the establishment of an International Iron and Steel Association for the purpose of exchanging information.

No single business and no single country can make any progress unless the business of all advances. A recognition of the dependence of each man's business and each country's business for its prosperity and progress upon the prosperity and progress of the business of all is necessary in order to make real progress; and we must recognize the fact that great commercial and industrial organizations increase the efficiency of people as well as of countries.

Senator Root, of the United States, in addressing the Pan-American Congress at Washington, on February 17, 1911, said:

The basis of all intercourse, commercial as well as social, necessarily lies in a genuine good understanding that cannot be simulated; people trade with those with whom they have sympathy; their disposition is to trade with their friends. The basis of all permanent commercial intercourse is benefit to both parties—not that cut-throat relation which may exist between enemies, where one is trying to take advantage of the other—and a relation based upon mutual respect, good understanding, sympathy and friendship; and the way to reach the condition which is thus essential is in personal contact and acquaintance between the men of all nations.

The change which has come with our modern system is to some extent in the material improvement of plant and machinery; but business the world over as it is conducted to-day does not lead to the extinction of competitors, and there are many moderately prosperous concerns in the steel industries to-day that would be swept away if the old methods of destructive competition and survival of the fittest were to obtain. There has followed a clearer conception of the relationship of the public, the wage-earner and the investor. Intelligent management appreciates that profits, if they are to be sustained, must be subordinated to justice and humane treatment, co-operation with one's competitors, pension funds for the superannuated, systematic endeavor for the prevention of accidents, voluntary compensation for the injured, recognition of faithful service, elimination of Sunday work, profit sharing, sanitary surroundings, hospitals. All these are manifestations of a humane and efficient policy. This proposed association will consider and develop these questions, and its decisions and example will have a widespread and lasting influence.

Willis L. King

I desire to express my appreciation of the opportunity I have of meeting so many of the iron and steel masters of Europe face to face. It is not only a great pleasure but an education for me, which I freely acknowledge. I have come to know you better, as we have in recent years in the United States of America come to know each other better. In other words, we have demonstrated that competitors there can be friends as well as competitors, and it is therefore not impossible here, although there may be difficulties which I do not know of, but I believe that all of us can be equally good friends. We have been accustomed in our country to look upon Judge Gary as our leader as well as our friend. I shall carry home with me a new title for him, suggested by Mr. Kestranek, who has called him the "Pope of the steel industry." He is therefore progressing. And as the Pope has spiritual authority, I am well convinced, when you know the Judge better, you will be willing to concede the same authority to him in business affairs.

E. A. S. Clarke

I think it is quite needless for me to say I am in entire and hearty accord with the views expressed by Judge Gary. Of course, we Americans have had the greatest pleasure in following his leadership and in benefiting by the results which have come therefrom. I feel that I want to say but one word to this meeting, and that is that I take it there is no doubt that we are going to try to have these friendships and these intimate relations and these business dealings in fairness and in the same spirit of friendship which have come to us in our country. But they have not come to us in one day. No great movement of reform comes full born and efficient. No reform ever attained a full one hundred per cent. of efficiency. I believe I am justified in saying that we have now 90 per cent. and perhaps more in our country. But we did not have that to begin with. There are many who are among our strongest co-operators to-day who were doubters at first. But seeing the belief and courage of others, and seeing particularly the courage and sincerity and the frankness and fairness of Judge Gary, they have become enthusiastic converts, and in turn they help others to be of their number. Therefore, if our committee be appointed and lay down some rules for the association, and if it should seem that what is proposed is impossible, that it is attempting the millennium, please kindly remember to give it a fair chance. Be patient with it, and if there are some lapses at first be confident that they will be corrected and that success must finally come.

Fritz Thyssen (Germany)

I ask your kind permission to address a few remarks to you just to say a few words of excuse to you. And in order to make this excuse more clear to you I should like to compare the activity of each country where there is a certain amount of steel produced. Each line of activity is represented by a pipe-line. There are countries which have big colonies, there are countries which have free countries to develop, and other countries again which have no colonies and no land to develop. It is natural that the countries with large colonies and where this kind of activity runs through must be very big, and other countries which have not this pipe-line must have a bigger pipe-line in order to have an outlet for their surplus of steam. I think your committee should try to come to an arrangement so that there never should be any undue pressure in any pipe-line representing the different nations. Then you will have a perfect result; and my wish is that you may also in the committee take into consideration the fact that there is always enough room for the steel of each country.

The CHAIRMAN.—The Chair was greatly impressed with the remarks of Mr. Kestranek. I am not sufficiently familiar with what he said in detail to express any opinion of it as a whole, but certainly any suggestions which were made are valuable and important to consider. It was rather suggested by Sir Hugh Bell in making a point of order that it is quite possible and quite probable all these questions could be carefully considered in detail by such committee as had been suggested, and certainly from that standpoint I should say that the gentlemen would be one of the most valuable members of a committee such as has been proposed. Gentlemen, I recognize that Sir Hugh Bell has a suggestion to make.

Sir HUGH BELL.—Gentlemen, I think we must almost regard the labors of this meeting as drawing to a conclusion, and that conclusion may be expressed in the resolution which I have ventured to draft and which I have submitted to you, sir, (though I have added some words which I did not lay before you because they were in relation to yourself, and I do not want your approval of them), and which I have further submitted to Baron von Bodenhausen, to Mr. Greiner and to Mr. Kestranek. It is conceived in the following terms: "That this meeting thanks his honor, Judge Gary, for his address and approves the views therein expressed and"—(this is the operative and substantial part of the resolution)—"the meeting accepts the suggestion that a committee should be appointed to consider in what manner practical effect can be given to those views, such committee to consist of not more than five representatives from each country, to be empowered to consider the whole question and to report the result of its labors to a subsequent meeting to be convened by the committee." I beg to move that resolution, and I believe Mr. von Bodenhausen is prepared to second it.

BARON VON BODENHAUSEN.—I have only two words to say. I fully concur in the proposition as laid before you and I want to second it.

The CHAIRMAN.—Gentlemen, you have heard the resolution. Will those of you in favor kindly say "Aye?"

The resolution was put to the meeting and carried unanimously.

The CHAIRMAN.—The respective delegations will meet at such times as seem convenient for the purpose of recommending members of the committee proposed by the resolution which you have adopted. At the next meeting, to-morrow morning, which I suggest to be at ten o'clock, if that is agreed to, we will receive reports from the different delegations recommending names for the general committee, and act upon that report.

SECOND DAY'S PROCEEDINGS.

The CHAIRMAN.—Gentlemen, the first thing in order is to receive the reports from the respective delegations concerning their recommendations for the General committee. The Secretary will call upon the different delegations for these reports.

The delegations in turn reported that they had elected the following members to act upon the committee:

(The names were given in the report printed in our issue of July 20.—**EDITOR**.)

The CHAIRMAN.—The motion is to adopt the reports

of the different delegations and to appoint as the committee of this convention the gentlemen whose names have been mentioned. Those in favor of the motion will vote "Aye"; those against the motion, if any, will vote "No."

The motion was carried unanimously.

The CHAIRMAN.—There is a resolution before the meeting to the effect that each delegation be authorized by this convention to fill vacancies and to make substitution from time to time as the delegations respectively may determine. Those in favor will kindly vote "Aye"; those against, if any, "No."

The motion was carried unanimously.

The CHAIRMAN.—Before we adjourn, I should like to extend the privilege to any who are present to speak concerning our deliberations. No one has been designated, no one is required to say anything, but everyone is given the opportunity of expressing his opinion, if and as desired. For myself, I should like to say that the result of this convention is most satisfactory. No one can tell what will be the final benefits which may be derived; everything depends upon the disposition of the gentlemen present. We have it in our power to do something for ourselves which is worth our while. I hope and believe we shall never regret coming together on this occasion. Certainly, if nothing more comes of it hereafter, we shall have reason to be very grateful that we have come together and enjoyed one another's society, and that we have increased and cemented the bonds of business friendship between us. I hope it will aid in materially extending our pecuniary welfare; and, more than that, will assist in placing the iron and steel industry on a basis which is worthy of any man or any company of men, or any organization. It remains entirely for us to say what the future of the iron and steel business shall be. If we have sufficient intelligence to know that a bushel measure cannot be filled with a half bushel of any quantity, we have begun to see that by careful consideration of one another's interest we shall all be benefited without injury to anyone. But I think we should all be particularly anxious that of all the questions growing out of, or appertaining to, the iron and steel industry, outside the mere matter of dollars and cents, the most important is that we shall reach and hold a position which entitles us to exert the influence in the great commercial world, and even in the political world, we ought to have.

Gentlemen, for myself I beg to express my profound gratitude for your consideration, and I express the hope that all of you may prosper; that you may have long life and happiness and that we shall have the inestimable privilege of meeting you often—looking you in the face and taking you by the hand and counting upon you as our friends—as our great business allies—and that you will assist us as we shall assist you. Gentlemen, you have the thanks of the chairman, and unless someone else has something to say, I declare the convention adjourned.

BARON VON BODENHAUSEN.—Before we adjourn, and before we go out of this room, I think it is due to us to thank our chairman for all the trouble he has taken and for the immense work he has done for us all. We have not come to a definite result to-day—we knew that we would not—but we have come to that which Judge Gary pointed out a few minutes ago, that we have learned to know each other better and to get better acquainted with each other. It is entirely due to the great work of Judge Gary that this has been possible. We do not know what may come out of it, but we are sure that something very good will come out of it, and so I think I speak in your name, gentlemen, when I say we thank the Judge for his work, and that we must heartily congratulate him on the success of these days.

Sir HUGH BELL.—I desire to second the motion made by Baron von Bodenhausen, and to associate myself and my colleagues here with the thanks which he has expressed. Your applause sufficiently testifies how entirely you concur in the motion which has been made. I venture to offer to Judge Gary my very sincere congratulations upon the admirable way in which his efforts have resulted. A meeting so diversely constituted as the present might easily have contained in itself elements of dissension which would have entirely frustrated the good that we have in view. Those sentiments, if they exist, have been subordinated (and I think wisely subordinated) by those persons who may have entertained any different opinions.

I think, your honor, we ought to proceed in the same

spirit in which we have originally met, the spirit, namely, of being prepared for that subordination. In speaking in the Abbey at Westminster, the Archbishop of York in his sermon pointed out that it is only by means of sacrifice that improvement can be reached. Any change means a difference from the situation which may be satisfactory to some, though unsatisfactory to others; and it is that spirit of sacrifice which I venture to commend to this meeting as the thing which ought to guide us in endeavoring to give effect to the admirable sentiments expressed by the Judge. In this spirit, gentlemen, I second the vote of thanks, and since your honor is unable to put it to the meeting yourself, I venture from this chair to put it to the meeting, and to invite you to carry it—not by cries of "Ayes" and "Noes," not by show of hands—but by acclamation which will testify how entirely we concur with the thanks which have been offered to our president. Judge Gary, we present you the hearty thanks of this meeting.

Mr. SCHWAB.—Gentlemen, I think it is only fair of me to say one word for the American group, and that is, to say how highly we all feel honored by the confidence you have placed in Judge Gary, the man in whom we have placed all our confidence during the past few years, and we can assure you that that confidence and esteem which you have shown will not be misplaced nor misjudged. We, the American group, feel highly honored and very pleased that you, the representatives of the great foreign manufacturers, should place so much confidence and esteem in our fellow countryman, which, as I have before asserted, has been fully appreciated by ourselves. We cannot lose this opportunity of again thanking all the foreign friends whom we have met here for their uniform courtesy, hospitality and their good faith, and to express the hope for the American group that we may soon have an opportunity of showing you, in some slight manner at least, our appreciation of all this and our endeavor to reciprocate. We thank you, gentlemen, in the name of the American group, very much for all these attentions and courtesies.

The Mammoth Potrero Gusher

The mammoth gusher of the Pearson oil interests in the Potrero de Llano field, State of Vera Cruz, Mexico, was recently allowed to perform for 20 minutes for officials of the Texas Company and the Gulf Mining Refining Company, according to the Mining and Scientific Press. The gate valve was opened for the first time since the well was brought under control, and a column of oil shot into the air to a height of 490 ft. The flow was estimated at 100,000 bbls. daily. With the possible exception of the Dos Bocas gusher, which burned out, the Potrero is the greatest in the history of the oil industry.

The well came in on December 26 last and before it was brought under control the flow was estimated at as high as 170,000 bbls. daily. The surrounding country was flooded and an enormous quantity of oil was sent down the Tuxpan River to the Gulf of Mexico. Weeks were consumed in accomplishing the herculean task of bringing the gusher into control. With the object of saving the production, earth storage was hurriedly provided and a stream of oil was directed into the reservoir, which constituted a petroleum lake fully a mile around and in places 30 ft. deep, estimated to contain 3,000,000 bbls. The pressure of the well is estimated at not less than 1000 lb. per sq. in. and the valve holding it has a strength of 2400 lb. per sq. in.

The Standard Underground Cable Company, Pittsburgh, has started work on the new plant which it will erect at Hamilton, Ontario, Canada, at a cost of \$500,000 to \$600,000. A site with a frontage of 400 ft. on Sherman avenue in the manufacturing district in that city has been secured. The first set of buildings will consist of a three-story brick and steel frame building, 64 x 335 ft. one-story saw-tooth building, 60 x 224 ft. one-story saw-tooth building, 60 x 250 ft.; two other one-story buildings, 64 x 90 ft. and 30 x 70 ft. respectively and an office building. These will be of the latest type of factory construction, designed by Prack & Perrine, who will superintend their construction. The structural steel for the buildings will be supplied by the Hamilton Bridge Works Company. All the contracts for the buildings, boilers, engines, etc., have been placed.

The Steel Corporation Investigation

The Testimony Increasingly Favorable

At the hearing before the Stanley Committee at Washington, July 26, John W. Boileau, an expert on coal deposits in Pennsylvania, appeared and demolished the theory heretofore entertained by many of the members of Congress that the United States Steel Corporation had acquired a monopoly of coking coal lands. He illustrated his remarks by a large colored map. He said the Steel Corporation owned 54,000 acres of Connellsville coking coal, Jones & Laughlin Steel Company 30,000 acres, Lackawanna Steel Company 15,000 acres, and John W. Thompson 25,000 acres, besides a number of smaller holdings which in the aggregate equaled or exceeded those of the Steel Corporation.

International Harvester Company Dragged In

At this hearing the committee sought to establish that the International Harvester Company and the Steel Corporation are one and the same, and charges were made by Chairman Stanley that the government failed to prosecute the Harvester Company, although evidence sufficient for criminal action was laid before the Department of Justice under Attorney-General Bonaparte. The report of the inquiry into the International Harvester Company made by Burdette C. Townsend, a special investigator for the Department of Justice, which was submitted to Attorney-General Bonaparte in 1908, was identified by Senator Kenyon and made a part of the record. This report showed that the Steel Corporation allowed rebates of \$3 a ton on steel used in machines made for export.

Chairman Stanley, after calling attention to the fact that five members of the Finance Committee of the United States Steel Corporation were directors of the International Harvester Company, called on Commissioner of Corporations Smith to get permission from the President to furnish the committee with all data as to arrangements by which the Steel Corporation was to furnish the Harvester Company with finished products and raw material at reduced rates, and in return the Harvester Company agreed not to purchase from the Lackawanna or other independent companies, together with other data showing close relations between the two concerns. Counsel Lindabury called attention to the fact that all this information was on the minutes of the Steel Corporation, already in the hands of the committee. Commissioner Smith told the committee that the department had been investigating the International Harvester Company for several years and still had men in the field at that work.

Attorney-General Wickersham on the stand said that he had never seen the report of B. C. Townsend on the International Harvester Company and its relations with the United States Steel Corporation until it had been shown to him a few months ago. The reason that no action had been taken against the alleged Harvester Company was, he thought, because of the desirability of waiting for the decision of the Supreme Court in the Standard Oil and American Tobacco cases.

An official statement given out in Chicago on the same day as the Washington hearing by Clarence S. Funk, general manager, declares that the International Harvester Company is unwilling to believe that the alleged report of 1908 to the Department of Justice contained charges which the most superficial investigation would not have shown to be unfounded. "It is hard to believe that any responsible person could make the charge," it says, "for instance, that the Harvester Company was selling its export machines at less prices than are charged in this country, when the contrary has been shown to be true, not once, but many times." It also states that little steel is bought from the Steel Corporation, the company getting most of its material from its own mill, the Wisconsin Steel Company, and a large part of the remainder needed from the Jones & Laughlin Steel Company. It was said that practically nothing but sheet steel was purchased from the United States Steel Corporation.

More Steel Plate Makers Heard

C. B. Shoemaker, president, and J. P. Roe, general superintendent of the Glasgow Iron Works, told the com-

mittee about the participation of that concern in the steel plate agreement which existed up to 1904. They testified that the association was formed to maintain prices, but insisted that there was not now in existence any such agreement or understanding as then prevailed. N. W. Nolan, of the Crucible Steel Company of America, testified to the same effect.

Leonard C. Hanna Examined

The committee next met in New York City July 28, and examined Leonard C. Hanna, of Cleveland, one of the managers of the syndicate controlling the Tennessee Coal, Iron & Railroad Company at the time of the panic of 1907. Although Mr. Hanna was kept on the witness stand all day, nothing was obtained from him that in any way discredited the assertion by Judge Gary and others that the United States Steel Corporation took over the Tennessee Company for the purpose of saving the firm of Moore & Schley from being forced into failure and thus greatly intensifying the financial disturbance. Members of the committee took turns in questioning Mr. Hanna, but all were unsuccessful in drawing from him any statement or expression of opinion that would support the theory that certain interests brought about the merger by inducing the banks from which Mr. Schley had obtained loans to bring pressure to bear on him to substitute other collateral for the Tennessee stock, resulting in action by Mr. Schley which brought about the transfer.

Lewis Cass Ledyard Gives Important Testimony

At the hearing in New York July 29, more light was thrown on the circumstances connected with the purchase of the Tennessee Coal, Iron & Railroad Company than had previously been obtained from any source either in the course of this investigation or at any other time. Lewis Cass Ledyard, one of the most prominent financial lawyers of the metropolis, took the stand, and, with graphic details, swept aside the curtains to the library of J. Pierpont Morgan and gave the committee and the public a view of the conferences that were being held there in the fall of 1907 for the purpose of bringing order out of the financial chaos. He stated that Colonel Oliver H. Payne was the man who first suggested the absorption of the Tennessee Coal, Iron & Railroad Company by the United States Steel Corporation.

Where Mr. Ledyard Came In

Mr. Ledyard, at the beginning of his testimony, explained his professional position. He said:

"I want that clearly understood, as otherwise it might seem strange that I should appear as a witness. I know that Mr. Hanna testified yesterday that I acted as counsel for the managers of the Tennessee Coal & Iron syndicate, but I never understood that I was acting for them. In fact, I did not know at the start that there was a syndicate or syndicate managers, although I had learned from Colonel Payne in a general way that some of the stock was pooled. Neither was I the attorney for Moore & Schley, who were represented by Thomas Thatcher.

"When I learned that I was likely to be called as a witness in this inquiry I called Mr. Schley's attention to the fact that I had not acted in a professional capacity for him, to which he agreed. I have never acted for Mr. Morgan or the Steel Corporation. I was, however, counsel for Colonel Payne, and had been for years. It was through him that I came into the matter. I asked him what he wanted me to do as to pleading professional privilege, and he declared that he would release me from any such relation. I am here to tell all I know, and am ready to do so.

"In the last week of October, 1907, Colonel Payne told me that Moore & Schley were largely indebted to him, and that he was concerned over their condition. He said they had a great quantity of Tennessee Coal & Iron stock out among the banks as collateral, and that the banks had asked for the substitution of other collateral because it was a pegged stock, and there were practically no transactions in it on the market. He said he

could see no way for Moore & Schley to be saved except by the acquisition of the stock by the Steel Corporation. That concern was named because it was in the same business, and the acquisition of the Tennessee Company would be an extension of it. In other words, it was a probable purchaser of the stock.

Mr. Ledyard Was Told to Consult Mr. Morgan

"Colonel Payne said the matter could best be brought to the attention of the Steel Corporation through Mr. Morgan, who, he knew, was an intimate personal friend of mine, although I had no professional relations with him. He said he intended to suggest to Mr. Schley that he ask me to see Mr. Morgan about it. Colonel Payne didn't say anything at the time about a syndicate. I supposed, then, that the mass of the stock was held by Moore & Schley as brokers.

"Soon after, I think on the Friday before the purchase was made, Mr. Schley asked me to come to his uptown office, where I met him with his partner, W. B. Dickerman, and Mr. Tierney, their chief bookkeeper. Mr. Schley said Colonel Payne had made the suggestion of which he had spoken to me, and that he was now ready to avail himself of it. I stayed several hours that night, going over the financial condition of the firm. Its loans among the banks amounted to \$33,000,000, perhaps \$35,000,000. It also had other loans which did not figure in the acute conditions. I don't know the amount of these, but I do know that one of their creditors was Colonel Payne. He had loaned them securities of a nature that could be used as collateral readily with the banks, taking in exchange uncurrent securities on which money could not be borrowed at the time. The securities loaned amounted to several millions, perhaps \$7,000,000 or \$8,000,000.

The Interview with Mr. Morgan

"Well, after I went over matters with Mr. Schley and the others that Friday night I went to see Mr. Morgan the next morning. I had asked Mr. Schley what would pull him out, and he had said that nothing less than par for the Tennessee stock would provide enough money to do it. When I told Mr. Morgan the situation he expressed great concern. He said it was the most serious thing that had been brought to his attention in connection with the panic. Mr. Schley's loans were spread out not only in Wall Street, but in Boston, Philadelphia, Chicago and elsewhere. Some other houses were already on the brink of failure. If one went, others would go. The banks also were involved. The trouble with Moore & Schley was not only because of the Tennessee stock, but because of the general character of a good many of their securities, such as American Tobacco common, Guggenheim Exploration, and some mining stocks. The most aggravated case was Tennessee, but that was not the only one.

"Mr. Morgan said he would see what could be done about it. He telephoned for Judge Gary and Mr. Frick. Mr. Frick was out driving, but Judge Gary was at home and came over to Mr. Morgan's house at once. Mr. Frick arrived a little later. After the matter had been laid before them I went into another room, and they talked it over together. Other members of the Steel Corporation's Finance Committee, I believe, were brought into consultation with Messrs. Gary and Frick through Saturday and Sunday, but I was not present. There were one or two conferences at which I was present with Messrs. Gary and Frick.

"Judge Gary was the reluctant one. He didn't think the stock was worth what I understood was necessary in order to save the situation; namely, par. He said it was not worth more than 60. I told him I knew nothing about its value, but I had no doubt the corporation could get it at 25 by waiting, if by that time it was in a position to buy anything, which I didn't believe it would be.

Judge Gary Willing to Lend \$5,000,000

"Up to that time the position of two trust companies—the Trust Company of America and the Lincoln Trust—had not been determined, and Mr. Frick came to me and said he didn't know whether the Tennessee deal would go through or not, and he thought it ought to be arranged at the same time that the two trust companies should be saved. I told him it was impossible to make any con-

ditions of that kind and that we were doing all we could for the trust companies. Judge Gary suggested that they lend Mr. Schley \$5,000,000, as he has testified. I told Mr. Schley of this, and he said it would be useless, that it wouldn't be enough to be effective.

"The relief he needed was much more than \$5,000,000 or \$6,000,000. As an indication of this let me say that after the deal was made and the bonds exchanged for the stock Colonel Payne turned over to Mr. Schley the bonds he received for 25,000 shares of Tennessee stock. He had 10,000 shares of his own and 15,000 shares which he had taken from Mr. Schley in exchange for more marketable collateral. The bonds he received for this stock, amounting to about \$2,500,000, he also exchanged with Mr. Schley for other uncurrent securities.

"Those interested wanted some verification of the facts stated to me by Mr. Schley and Mr. Joyce. A confidential man in the employ of Morgan & Co. and a representative of the Steel Corporation were turned loose on Mr. Schley's books. They worked for two days and most of the night, and when Mr. Joyce came up to Mr. Morgan's library I told him what Mr. Schley had said, that it would take par for the stock to pull him through and leave \$3,000,000 or \$4,000,000 in his box. Mr. Joyce said he thought it would work out just about that way. This, I believe, was on Sunday night. I was with Mr. Morgan until about 5 o'clock in the morning. There were other conferences on at that time, and probably 100 persons were concerned in them and visited the library that day and night. Mr. Morgan told me he was very much afraid the deal wasn't going through. He said if it didn't there was no knowing what would happen. If Moore & Schley failed nobody could say what would follow.

Mr. Morgan Refused to Urge the Deal

"I asked Mr. Morgan if he would urge the deal on the Steel people. He said he would not; that he had submitted it to them, and that was all he could do.

"I didn't know Messrs. Gary and Frick were going to Washington until after they had gone. They disappeared about midnight, and when I was leaving Mr. Morgan about 5 o'clock in the morning he said they had gone to Washington to tell the President the situation, and that they didn't want to go on with it if they were to be attacked for doing it.

"Mr. Morgan told me to go home, get some sleep, and come back at 8:30. I didn't sleep much, but when I got back Mr. Morgan was up and had had a good breakfast. He thought we would hear from Washington by 9, but we didn't, and the message finally came through his office later in the day. The result, as I understood, was that no objection would be made to the transaction. I never talked with Messrs. Gary and Frick, either before or after their visit, concerning its object."

In reply to a question Mr. Ledyard said that "to practical men there was nothing very strange, when these men were about to make this exchange for a praiseworthy object, knowing how political capital is made out of such things, that they should tell the President the situation and that they would not carry it out if it was to be made the subject of an attack on them by the government."

Asked what he thought of an administration that would make such attacks, Mr. Ledyard said: "I don't think my opinion would help much, and, anyway, I am a Democrat."

No Pressure by Mr. Morgan or the Corporation

Mr. Ledyard declared that the imputation that Mr. Morgan, the banks he controlled or the officers of the Steel Corporation had made a drive against the stock of the Tennessee Coal, Iron & Railroad Company for the purpose of buying its control was cruel, unjust and not warranted by any of the facts. When asked if the pressure on Moore & Schley came especially from the Morgan banks, he said:

"It is pretty hard to say just what is meant by Morgan banks. Mr. Morgan is not president of any bank, and, so far as I know, is a director in only one, the First National. The reason Mr. Morgan has the great influence he possesses is because people believe in his character and the worthiness of his motives. However, none of those that are called Morgan banks was exerting pressure on Mr. Schley. His own banking house was one of the

largest creditors of Mr. Schley and one of the largest holders of Tennessee stock as collateral.

"Morgan & Co. never called these loans nor asked Mr. Schley to shift the collateral. The First National Bank, which is called a Morgan bank, was another large creditor. It exerted no pressure, and as a matter of fact, Mr. Baker, its president at that time, is a brother-in-law of Mr. Schley's, and was one of the most anxious of those who were trying to pull him through. He was one of the two men, in addition to Colonel Payne, who arranged to put up \$3,000,000 more to be used in saving Moore & Schley, if the exchange of Steel bonds for Tennessee stock did not prove sufficient. This fund was put at the discretion of Mr. Morgan personally to be used as he saw fit in giving further assistance to Moore & Schley. It did not become necessary, however, to use any of it.

"Judge Gary was in error when he testified that these men agreed to loan Mr. Schley \$3,000,000 in addition to the loan of \$5,000,000 or \$6,000,000 the Steel Corporation offered to make. This fund was a matter that came up afterward. It was my own idea, and my own suggestion, and applied only to the situation that would be created by the purchase of the Tennessee stock."

Mr. Ledyard was examined at length concerning the details of the negotiations, but declared at all times his belief that in no other way but by the purchase of the Tennessee Coal, Iron & Railroad Company could the financial situation have been saved at that time.

Earl W. Oglebay Examined

Earl W. Oglebay, of Cleveland, one of the members of the Tennessee Coal & Iron syndicate, who came to New York with L. C. Hanna, when the negotiations took place, testified briefly concerning his interest. He was taken over much the same ground as Mr. Hanna had been as to the value and condition of the property. He said he knew nothing of any conspiracy for the purpose of forcing the sale of the Tennessee Company to the Steel Corporation and that no commissions had been paid to J. P. Morgan & Co., or anybody else for negotiating the deal.

Fuel Oil Specifications

The success which has attended the use of heating-value specifications in buying and selling coal has caused a demand for similar specifications, based on careful tests, to govern the purchase of fuel oils and the refined products of petroleum. The Bureau of Mines, Washington, D. C., has therefore issued Technical Paper No. 3, by Irving C. Allen, on "Specifications for the Purchase of Fuel Oil for the Government," with directions for sampling oil and natural gas. Mr. Allen says:

"These specifications, to be satisfactory, should establish not only the heating value of the oil, and thus show, like the specifications for coal, the number of heat units the purchaser obtains for a given price per unit quantity of fuel, but also the physical character of the oil, its flash point and burning point, and the quantity of extraneous matter it contains. It is evident that an essential feature of any such plan of purchasing oil in bulk is an equitable method of sampling deliveries; that is, a method that insures the taking of representative samples."

General specifications for the purchase of fuel oil are given as follows:

Fuel oil should be either a natural homogeneous oil or a homogeneous residue from a natural; if the latter, all constituents having a low flash point should have been removed by distillation; it should not be composed of a light oil and a heavy residue mixed in such proportions as to give the density desired.

It should not have been distilled at a temperature high enough to burn it, nor at a temperature so high that flecks of carbonaceous matter began to separate.

It should not flash below 66 deg. C. (140 deg. F.) in a closed Abel-Pensky or Pensky-Martens tester.

Its specific gravity should range from 0.85 to 0.96 at 15 deg. C. (59 deg. F.); the oil should be rejected if its specific gravity is above 0.97 at that temperature.

It should be mobile, free from solid or semi-solid bodies, and should flow readily, at ordinary atmospheric temperatures and under a head of 1 ft. of oil, through a 4-in. pipe 10 ft. in length.

It should not congeal nor become too sluggish to flow at 0 deg. C. (32 deg. F.).

It should have a calorific value of not less than 10,000 calories per gram (18,000 btu per lb.); 10,250 calories to be the standard. A bonus is to be paid or a penalty deducted, as the fuel oil delivered is above or below this standard.

It should be rejected if it contains more than 2 per cent water.

It should be rejected if it contains more than 1 per cent sulphur.

It should not contain more than a trace of sand, clay or dirt.

Each bidder must submit an accurate statement regarding the fuel oil he proposes to furnish. This statement should show: 1. The commercial name of the oil. 2. The name or designation of the field from which the oil is obtained. 3. Whether the oil is a crude oil, a refinery residue, or a distillate. 4. The name and location of the refinery, if the oil has been refined at all.

Copies of the paper may be obtained by addressing the director of the Bureau of Mines, Washington, D. C.

Mechanical Plant Auxiliaries on Fourth Floor of Lofty Building

The Municipal Building at the Manhattan terminal of the Brooklyn Bridge, New York City, which is being erected to house the different city departments that are now scattered through several buildings, has a unique arrangement of boilers and distributing system, the center of the system being about 100 ft. above the boilers. This was due to a subway station in the basement of the building on the same level as the boiler room. It was important on account of the heavy passenger traffic to have the station as large as possible; consequently the boiler room was made correspondingly small, with the result that all the usual equipment could not be paced in it and the fourth floor, having an area of nearly 43,000 sq. ft., was selected for the auxiliaries.

In the basement are six Babcock & Wilcox boilers having a total of 1600 hp., which supply steam for heating, and for running the ice machine and the pumps. The steam pipes from the boilers pass over the top of the subway between it and the street level, and then enter a vertical shaft leading to the fourth floor. From this floor, which is the distributing center of the building, the usual risers of the heating system extend.

At first electricity for lighting will be purchased from an outside company, but provision has been made for installing engines and dynamos should occasion require.

The Illinois Steel Company's Operations

From a letter issued by President James A. Farrell, president of the United States Steel Corporation, referring to the new issue of bonds of the Illinois Steel Company, the following statement is taken:

The manufacturing plants comprise 19 blast furnaces, 6 Bessemer steel converters, 25 open-hearth furnaces, 6 blooming, billet and slabbing mills, 2 rail mills, 3 plate mills, 1 structural mill, 2 wire rod mills, 9 merchant mills and sundry other departments for the production of finished steel. All the plants are modern and in excellent physical condition.

The company also operates under lease the steel plant of the Indiana Steel Company, generally known as the Gary plant of the United States Steel Corporation. The conditions of this lease impose no fixed charge whatsoever upon the Illinois Steel Company, the amount of rental being based entirely upon the net receipts obtained by the Illinois Steel Company from the operation of said plant.

The output of the plants operated by the Illinois Steel Company during the year 1910 was as follows: 2,774,700 tons of pig iron and other blast-furnace products, 3,129,700 tons of steel ingots and 2,476,000 tons of finished steel products of various classes, being about 23 per cent. of the aggregate finished steel output in 1910 of all the steel manufacturing companies controlled by the United States Steel Corporation.

Due to the dullness in the iron trade, the employees of Witherbee, Sherman & Co., Port Henry, N. Y., have had their wages reduced 10 per cent. beginning August 1.

S. DIESCHER & SONS.
Mechanical and Civil Engineers.
PITTSBURGH, PA.

Selling American Machinery in Europe

Establishing Trade and Cultivating It

BY C. A. TUPPER, MILWAUKEE

Impatience for quick returns, ignorance of conditions in the foreign field and the lack of sustained effort are the greatest hindrances to the successful building up of export trade. Particularly is this true of a selling campaign in Europe, where Americans are not, in any sense, dealing with inferiors, but come into direct competition with men of very keen business acumen, in whom both the instinct and the ability for merchandizing have been developed through generations of trading ancestors.

The tendency has, unfortunately, been to commence at the wrong end. The sale of American machine tools to European users does not begin in Europe; it begins at home. There the preparations must be made; there the organization must be effected, and there the policy must be determined upon which is to win success. Until these things have been accomplished, the preliminary scouting, mentioned in this and previous articles, and the establishment of representation abroad has very little practical value. With hit-or-miss methods and fairly good selling agents considerable business may, of course, be done. Some American tools almost sell themselves. But we are here considering the development of a steady, profitable trade, which will bring its increase with the years. To secure this, a definite, well-laid system is essential. The best illustration of my meaning can probably be given in a concrete case, showing how such a system would be evolved.

Experience of a Sagacious Manufacturer

Some years ago, when *The Iron Age* published considerable matter concerning opportunities abroad as reported by an agent of the Bureau of Manufactures and its own correspondents, a manufacturer of the Middle West might have read and pondered. He and his partner, say, had started in less than a decade previous to build an ingenious special tool, which had been steadily improved and the merits of which had won general recognition. Domestic trade, however, was experiencing a series of ups and downs which compelled the firm frequently to run on short time or else accumulate an unmanageable surplus, so that their production was anything but economical. Would it not be possible by cultivating foreign trade, to use it as a balance wheel to equalize manufacturing and selling conditions? They decide to see.

One of the partners, who speaks German fluently, as many in this section of the country do, takes an early steamer to Europe, after securing letters of introduction to people whose acquaintance may assist him abroad, including plant owners, managers of selling agencies, correspondents of technical papers, American consuls, bankers and others. Many of these he does not need, but those that he can use come in very handy.

Arriving in Liverpool he goes first to London, where visits are paid to the branch offices and central agencies for European trade located there. One or two of the managers are a bit standoffish, but the majority greet him very cordially and advise him in considerable detail just what he ought to do and see on the Continent. Further letters of introduction are also tendered and accepted. These prove the most useful, probably, of any he carries.

From London he travels, via Flushing, to Düsseldorf and goes through the plants there, including the Schiess, the De Fries and the Haniel & Lueg shops, which are among the largest and best known, with a look-in at others such as those of Hartung, Kuhn & Cie, Wellman, Seaver & Head, Ltd., etc., and works in the suburbs like the Stahlwerk Oeking, Akt. Ges., Lierenfeld; the Eschweiler-Ratinger Maschinenbau, Akt. Ges., Ratingen, or the Akt. Ges. Oberkalker Stahlwerk and the Hein, Lehmann & Co., Akt. Ges., at Oberbilk. Then he makes Düsseldorf his headquarters for short trips to surrounding cities and towns, including visits to typical plants like the Deutsche Maschinenfabrik Akt. Ges., the Duisberger Mas. Fab. J. Jaeger and the Gebrüder Scholten, at Duisburg; the Rud.

Meyer Akt. Ges. and Thyssen & Company, at Mülheim-am-Ruhr; the Maschinenbau Akt. Ges. Balcke, at Bochum; the Wilhelm Breitenbach Maschinenfabrik, at Unna; Basse & Selve, at Altena; Otto Froriep, at Rheydt; the Maschinenfabrik Sürth, Gas Motoren Fabrik Deutz, Kölnische Maschinenbau Akt. Ges., the J. Pohlig Akt. Ges. and Maschinenbau Anstalt Humboldt, in Köln (Cologne) and vicinity; the great machinery-building plant at Oberhausen, called the Gutehoffnungshütte—a name that is said to be derived from the iron works at Sterkrade where the founder of the Krupp works learned his trade, and other establishments along the route.

His Progress in Industrial Europe

He would still like to visit Essen, Dortmund, Gelsenkirchen, Hagen, Hamm, Horde, Remscheid, Mülheim-Bladbach, Solingen, Eberfeld-Barmen, Neues, Mülheim-am-Rhein and perhaps Aachen; but this would take too much time. I have, however, mentioned the Düsseldorf district in some detail in order to give some idea of the range of the metal-working industries, from cutlery and grinders to the heaviest machine tools, steel-mill equipment, blast furnaces, gas engines, etc., to be found there. If the American manufacturer's trip ended in this district he would already have seen enough to give him a good conception of German requirements in the way of operating machinery. Wishing to know more, however, he proceeds to Berlin, stopping on the way at Hanover to see the large locomotive works there.

In Berlin the Ludwig Loewe plant is visited, as well as the works of the Allgemeines Electricitäts Gesellschaft, Carl Flohr, Bergmann Electricitäts-Werke Akt. Ges., etc., with side trips to the Borsig shops at Tegel, the Siemens & Halske-Siemens-Schuckert Werke, at Nonnendamm; the Condensationsbau-Gesellschaft, at Grunewald, and the group of industries at Oberschönweide on the Spree, which includes the German branch of the Niles-Bement-Pond Company.

The next stop is Chemnitz, where he is cordially received, for the most part, at the Werkzeugmaschinenfabrik Union, the Wanderer Fahrradwerke, the J. E. Reinecker Werke, the shops of Biernatzki & Cie. and of Schubert & Salzer, and the Sächsische Maschinenfabrik. Then, after a few hours spent at Leipsic, during which the Leipziger Werkzeugmaschinenfabrik is visited, he goes on via Brünn and the Erste Brünnner Maschinenfabrik, to Prague in Bohemia, one of the provinces of Austria. Here he finds a number of excellently equipped plants, including, in the suburb of Karolinenthal, the Maschinenbau-Akt. Ges., formerly Breitfeld, Danek & Company, and the Elektrizitäts Akt. Ges. From Prague, the traveler proceeds to Vienna, where he finds the Vulkan Maschinenfabrik Akt. Ges., the Oesterreichische Dampf-Turbinen Ges. and the Ernst Dania Werke among the most interesting plants. Other shops not far distant are worth visiting, but he feels that he must be getting on.

Through Italy and Switzerland

A trip to Trieste and across north Italy, with inspection of machinery-building plants and other establishments on the way, including the great Franco Tosi shops, near Milan, and the Fiat automobile works, at Turin, follows. Then comes a journey through Switzerland, the features of which center in the plants of Escher-Wyss & Cie, at Zurich; the Maschinenfabrik Oerlikon and the Werkzeugmaschinenfabrik Oerlikon, at Oerlikon, a suburb of that city, and the Brown-Boveri & Cie's works, at Baden, only an hour distant.

Proceeding via Munich to Nuremberg, the investigator finds himself in another important industrial district, where the Maschinenfabrik Augsburg-Nürnberg, of Nuremberg, representing a consolidation of large machinery-building concerns, is most prominent in the metal-working line. Next comes Frankfurt-am-Main, where the fine plants of the Voigt & Haefner Akt. Ges. and the Felton

& Guilleaume-Lahmeyerwerke Akt. Ges., are the points of attraction.

Thence making a detour to Cannstatt, near Stuttgart, to inspect the Daimler automobile works, and avoiding the seductions of other places on the way, the American manufacturer travels on to Paris. Up to this point, it will be observed, he has, with the exception of his Italian experiences, been in German-speaking countries exclusively and had no difficulty in conversing freely with the people whom he met.

The views with which he set out for Europe have undergone many radical revisions. He has lost the notion that Americans, and American only, build the best machine tools; that our methods of plant operation are far superior to those of Europeans. He knows now that this is a matter of individual efficiency. During the journey he has seen shops which would be a credit to any country in the world, and tools produced both in England and on the Continent that equalled—if in some instances they did not surpass—the best American examples of their type. He has also rid himself of the conception that, in modern machine-tool building, Continental designers are merely aping American practice. It is evident to him, on the contrary, that they are progressing rapidly along lines of their own, from which our manufacturers will in future have much to learn. At the same time he is gratified to discover that American tools deservedly stand high in the favor of European users, that the service they render is admittedly efficient, and that many have made a place for themselves in every industrial district visited from which only the neglect of their own builders can dislodge them.

Impressions of Foreign Industry

He has been impressed, far more than he ever supposed he would be, with the so-called European conservatism. There are, he discovers, reasons for practices and preferences which had formerly seemed to him absurd. His admiration for American "speed" diminishes somewhat as he observes the slower but often surer methods used by many of his hosts in reaching carefully planned results, and he concludes that, on the whole, two steps forward, with none back are better than three forward and one or two back.

He has been charmed with the courtesy everywhere shown him and is interested to learn what a large part it plays in all business relations abroad. American brusqueness lack of pucilliousness, tactlessness and disregard of the amenities of life lose for him the guise of rugged, sterling qualities with which he had unconsciously invested these relics of savagery. What he has thought of as native "independence" he sees now is nothing of the kind, but merely boorishness and poor business policy. On the other hand, he finds among his entertainers admiration for American directness and spontaneity and a leaning towards American simplicity. He finds everywhere a liking for the genuine things of American life, an emulation of our industrial efficiency and a desire to trade with us that has been strangely persistent in view of the rebuffs and indifference manifested on our side.

Europe Wants the Best Machinery

The traveler is quick to perceive, however, that Europe is not a dumping ground for surplus American products, but that any tool offered for sale must have sufficient merit to justify its choice, as compared with competing apparatus. In line with this, he notes that installations of American tools represent the leading products of our shops and are generally such as he would himself select for the same character of service. From repeated inquiries he also learns, not altogether to his surprise, that a large percentage was purchased not as the result of solicitation, but on the users' own initiative. Many proprietors of large shops, he is told, have sent men to the United States to look up the best tools, and they as well as others have been regular or intermittent readers of the American technical papers in which the leading tools are advertised and described. In the great iron and steel districts, where a majority of the shops is located, he finds *The Iron Age* habitually consulted by their managers and quoted in all the local papers. This is a factor in the introduction of American machinery the extent of which surprises him, for he has not thought of it before.

The manufacturer, as he goes along, is surprised to hear the smiling comments, which soon turn into serious

condemnation, on American methods of packing and shipment and carelessness in meeting terms of delivery. He is shown examples of such negligence or stupidity that make him swear under his breath; and American consuls, some of whom have been of great assistance to him en route, are almost tearful in their complaints. They have tried so hard in their published reports, in letters and on visits home to make exporters here understand the follies committed by their employees; but no one seems to pay any attention to what they say, except manufacturers such as he, who have been abroad and made observations for themselves.

He sees letters, catalogues, etc., that were mailed in the United States at domestic rates of postage and is informed that this happens not only occasionally but is almost the regular thing. He is shown goods so interpacked that the entire consignment takes the highest possible rate of duty, notwithstanding specific instructions given by the purchaser; and he sees for himself other blunders that make him blush for his countrymen.

Getting Personally Acquainted

With it all, however, our traveler has had the "time of his life." He feels tolerably familiar with Europe and Europeans; with their methods, tendencies and preferences; and he realizes how much better it is to try to meet their views than to vainly and stubbornly combat or ignore them. Friends have been made and acquaintances formed that will be of incalculable value in the firm's export campaign. His signature at the bottom of a letter will recall to any one of dozens of shop proprietors, managers or superintendents, as well as others met on the way, that genial, unaffected American who took so much interest in what he saw and gave such sympathetic attention to what they had to say; while he, on his part, will find in future correspondence many memories of the pleasant, eventful days he spent in their company. In the shops visited he has, too, picked up numbers of valuable hints and had suggested to him improvements which he can make in his own manufacturing operations, by the elimination of waste and in the handling of the men employed by the firm, which will be put to practical use when he returns.

Meanwhile he has left behind him a long line of plant managers interested in his own machine, all the more from the fact that he has talked about it only incidentally; and he has noted their recommendations for slight alterations which will enable it to better suit the purposes of shops such as theirs. These vary somewhat but can all be embodied in comparatively simple changes at very little expense. One or two, perhaps, will be of advantage in the home trade by giving the machine additional flexibility or economy. But most important of all is the interest created; and when his European representatives approach these prospective customers later on, they will find sales more than half made where the demand for such a machine exists.

Looking Up Agencies

Throughout the route the American manufacturer has taken occasion to look up agencies at every possible opportunity. He is now more or less personally acquainted with their characteristics and has them pretty shrewdly "sized up." With some he closes tentative arrangements, to be confirmed by correspondence after his return home. Also, he has their ideas of selling, of the preparation and distribution of advertising literature, of the use of the metric systems for scales on the machine, measurements, weights, etc., in correspondence; of shipment and routing, customs requirements, use of screws for boxes instead of nails to facilitate examinations, preparation of manifests, delivery terms, collections, banking arrangements, etc.—all of which will be confirmed in letters from them—and is prepared to co-operate with them on a basis of mutual understanding. Furthermore, the matter of commissions, both on direct sales and on other orders taken in their territory, has been fully gone into, thus tending to do away with future misunderstandings.

Returning to America, with France, Belgium and other countries—except as to some work in Paris and vicinity—left for another time or for his partner, the manufacturer sums up his experiences. He is amazed to recognize what a wealth of detail has been gathered, without undue crowding or hurry, in so short a period.

Then follows the most important part of the undertaking, viz.: the conferences with and the enthusing of his

partner and the organization of an export department which shall be something more than a side issue.

System to Cultivate European Trade

It is decided (1) that they will systematically cultivate European trade and concentrate, in the beginning, on the districts that have just been visited; (2) that a certain part of their output, as a minimum, will be held subject to foreign sale; (3) that various minor changes will be made in the standard machines set apart for export; (4) that the preliminary arrangements for foreign representation shall be closed; (5) that a stock of repair parts is to be kept in one of the cities of Germany for immediate shipment to customers as needed; (6) that descriptive literature in German shall be prepared with the aid of a Berlin agency and printed in that place, but with the use of American half-tone engravings and paper equal to American catalogue stock; and (7) that all detail work in their shop, shipping department and offices shall be looked after only by mature, careful employees who can be absolutely trusted to guard against repeated blunders.

Finally, when those who are to assist in carrying on the export trade, whether giving their entire time to it or in connection with other duties, have been selected, a conference with all of them is held. They too are enthused, instructed and given to understand that they are entering upon most important work. Then, and not until then, is the firm prepared to start its campaign abroad.

Adhering to a Policy

This, however, is not yet all. The seed sown must be allowed time to grow, the ground must be cultivated with regularity and the harvest should be awaited in patience. This probably constitutes the most trying period for the firm's interest, but there is worse danger ahead for the plan itself, viz.: when the domestic demand becomes so brisk, as it always does at intervals, that the firm falls behind on home deliveries. Then it will be difficult not to raid the export stock, not to let the supply of repair parts in Europe become depleted without renewal, and not to discourage or hold off orders from abroad. But, so surely as these things are done, the trade which has been built up with effort in European countries passes into other channels and is hard to recover when needed again. Particularly fatal is the neglect of repair orders, which renders customers bitterly resentful.

If American manufacturers cannot make up their minds to adhere steadfastly to their export policy under any and all circumstances, no matter what large, quick profits are sacrificed at home, it would be better not to enter upon a foreign campaign but merely to fill orders, when convenient, that come without effort in the usual course, as some few are almost certain to do.

In writing the above I have had particularly in mind a firm which, throughout the boom times of two to three years ago when the automobile companies were heavy buyers of machine tools, remained loyal to its European connections. In these dull days of slack domestic buying it is extremely thankful for the large foreign trade that the partners had the foresight to retain and which, with what home orders there are coming in, keeps the shops working practically to capacity.

The circumstances related are, however, typical of the experience of American machine-tool men who investigate conditions abroad, and they form the surest basis for a successful selling campaign, which then is founded on personal knowledge, acquired at first hand, rather than upon vague, erroneous impressions.

Lake Superior Mining Notes

Another Mesaba Concentrating Plant

DULUTH, MINN., July 29, 1911.—Work will soon start on the second Mesaba concentrating plant, to be erected by the International Harvester Company, in order to treat its ores of the Hawkins mine and perhaps for others as well. While this work will be planned in a general way like that of the Oliver Iron Mining Company, now in successful operation at Coleraine, it will differ in several important features. The liver plant is equipped with Overstrom tables for handling the fines and for taking out what ore may be left in the material after it has passed the turbine washers and the jigs. The Harvester

plant will do away with tables altogether. By this means the cost of washing and of construction will be considerably reduced, but there will be no such close saving. This is a matter that affects fee owners chiefly, and in the case of the Oliver company it seemed to be a necessity of the situation that tables be included in the works. Ore will be brought to the Harvester plant by train and dumped at the foot of the works, then elevated to the head of the building by belt conveyors. In the Oliver plant it is brought by train directly into the top of the building and dumped into the bins from which it is fed to the machines. Some consider that belt conveyors will clog with the class of ore mined at these western Mesaba properties, but no doubt Mr. Sellwood and his associates have satisfied themselves that conveyors will be suitable, or they would not put them in.

Another metallurgical operation that will be watched with considerable interest is that of the Jones step furnace, which is now going up at the old Kloman mine in the Marquette country. This furnace will be ready for business, it is now expected, the coming autumn. A similar furnace is under construction for the nodulizing of flue dust at the works of the Zenith Furnace Company, Duluth, and this would appear to be a most rational utilization of the Jones idea. There is wide diversity of opinion as to the practicability of this process so far as its application to the direct reduction of iron ores is concerned.

Concrete Shaft Work

Recent concrete shaft work at the new property of the North American Mining Company, Vermilion range, presents several interesting features, and a brief description of operations may be interesting. The shaft was sunk in a swamp of considerable area, resting upon a quartz porphyry rock, with a stratum of gravel above the rock, quicksand next, clay next and the muskeg above to the surface. The swamp receives drainage from a territory of considerable size and was liable to be very wet at all times; for this reason it was decided to sink a concrete shaft, and a contract was given the Foundation Company of New York to sink a rectangular shaft, 6 by 14 ft. in the clear, to the ledge. The walls of this structure are 42 in. thick at bottom and it is heavily reinforced with steel rods. It was sunk 94 ft., but the junction between shaft and ledge was not closely made.

It became necessary before operations could proceed that a better joint should be had, and this was provided by cement. Some 12 carloads of neat cement were dumped into the shaft, filling it from the rock ledge to several feet above the bottom of the shaft lining. This was then cut out by blasting sufficiently to set 12 x 12 in. timbers solid from the concrete shaft lining to the ledge and four feet into it, the timbers being flush with the sides of the shaft and carrying it down.

Further sinking was almost immediately stopped by an overloaded blast that shook up the ledge. Holes were then bored through these timbers, on all sides, and pipes were inserted in the holes running out into the space behind the timbers. These pipes were carried to the surface, on which the shaft was permitted to fill with water. Liquid cement was then forced down under a pressure of about 250 lb. until the spaces back of the timbers, and the interstices of the gravel and quicksand, had absorbed all they could hold. As the shaft was full of water there was no current, and it is expected that the material pumped down has remained and set where intended.

Trial of the water level since then seems to prove that the seal is complete and perfect, but the company is anxious to have no further mishaps, and is now sinking a drill hole, 3 in. in diameter, outside the shaft and quite near it, which will reach the ledge, when more cement will be pumped down to complete the sealing. When the water has been pumped out the company expects to break out space in the solid ledge below the concrete and insert bearing beams on all sides of the shaft. While driving the drill hole, it was found that the cement pumped down through the timbers had set in the quicksand, transforming it to concrete.

D. E. W.

The Lake Shore & Michigan Southern Railway Company has adopted the design of the Strauss Basculer Bridge Company, 901-904 Fort Dearborn Building, Chicago, for a 125-ft. single leaf double track span over Buffalo Creek.

Pig Iron Mixers

Their Use in Iron and Steel Plants

In the issue of *Stahl und Eisen* for March 9, 1911, appeared the last of a series of articles on pig iron mixers by Prof. O. Simmersbach of Breslau. The previous articles gave details of design and construction, but the last article is especially interesting because it presents the metallurgical results obtained.

Desulphurization

The most important of these is probably the desulphurization, which is effected equally well in heated or unheated mixers. A considerable removal of sulphur, however, is brought about in the ladle, while coming from the blast furnace. For example, in a 750-ton mixer, that was not heated, to which good basic pig iron containing 1.1 to 1.3 per cent. manganese was brought over a considerable length of track, the following results were shown:

| | Per cent. |
|---|-----------|
| Average sulphur at blast furnace..... | 0.254 |
| Average sulphur entering mixer..... | 0.100 |
| Average sulphur entering converter..... | 0.084 |
| Average sulphur of finished steel..... | 0.052 |

The average analysis of the mixer metal over four days was:

| | | | |
|---------------|-------|------------------|------|
| Silicon | 0.49 | Manganese | 1.06 |
| Sulphur | 0.085 | Phosphorus | 1.98 |

It was used in the basic Bessemer converter. This shows that 76.24 per cent. of the sulphur removed was taken out during transportation; 7.29 per cent. in the mixer, and the rest in the vessel. Another test gave 0.25 per cent. in the original iron, 0.122 on entering the mixer, 0.113 on entering the converter, and 0.058 in the finished steel. When the iron contained less manganese, less sulphur was removed during transportation, the same amount in the mixer, and therefore more had to be removed in the vessel.

Heated Mixers

In the case of an English 200-ton mixer, in which preliminary refining was done, the following results were obtained:

| | | | |
|---------------|--------------|------------------|------|
| Silicon | 1.4 | Manganese | 1.00 |
| Sulphur | 0.14 to 0.17 | Phosphorus | 0.80 |

Ore and lime were added; slightly less than $\frac{1}{2}$ per cent. ore and $1\frac{1}{2}$ per cent. lime. The average temperature on entering was 1245 deg. C, and on leaving 1350 deg. The average removal of silicon over a period of five weeks was 30.29 per cent. and of sulphur 50.54 per cent. The desulphurization was brought about by the high temperature and also 3 per cent. manganese contained in the ore. The manganese in the iron remained the same, or slightly increased, which was also true of the phosphorus.

In the case of another heated mixer, so much ore, roll scale, and lime were added that the silicon was completely removed, and the manganese and phosphorus to a large extent. The pig iron and mixer metal had the following composition:

| | Pig iron. | Mixer metal. |
|------------------|-----------|--------------|
| Carbon | 3.50 | 3.07 |
| Manganese | 2.60 | 0.54 |
| Silicon | 0.36 | ... |
| Sulphur | 0.10 | 0.04 |
| Phosphorus | 0.125 | 0.062 |

After a discussion of the part played by manganese in the removal of sulphur comes a series of curves giving the results obtained for a year with a mixer heated with blast furnace gas and hot air. No slag-making materials whatever were added. The phosphorus in the pig iron varied from 1.92 to 2.13 per cent. Only a very small amount was removed, and sometimes a slight increase could be noticed. The silicon varied from 0.56 to 0.77 per cent. in the pig iron. A considerable part was removed, amounting in some cases to 15 per cent. The manganese in the pig iron varied from 1.48 to 2.11 per cent. It showed a consistent decrease, amounting in some cases to 9 per cent. Finally, the sulphur in the pig iron varied from 0.059 to 0.085 per cent., and was lowered in every case. The removal varied from 21.4 to 38.1 per cent.

The thorough mixing and preliminary refining that may be brought about in a mixer make it applicable to all steel making processes and also to foundry work. For acid Bessemer work its chief usefulness is as a collector, and often iron is needed to recarburize a charge. The silicon in the iron is necessary for the operation, and so should not be lowered.

Open-Hearth Work

There is a wider sphere of usefulness in the acid open hearth. Here the excess of silicon may be removed in the mixer which prevents too stiff a slag in the later process. The phosphorus also can be lowered. In these ways the time of the operation is shortened, and less iron is lost in the slag. In the basic Bessemer its importance has been widely recognized and is well known. In the basic open hearth the mixer could serve as a desiliconizing apparatus, and at the same time large amounts of sulphur, phosphorus and manganese would be removed. This would furnish a very suitable material for the open-hearth furnace, shortening the time of the operation.

If the mixer process was so carried on that only a small amount of phosphorus was removed, then the open-hearth slag would be correspondingly richer in this element and more valuable as a fertilizer. This also follows because of the absence of the other metalloids. If, on the other hand, most of the phosphorus was removed in the mixer, then the pure open-hearth slag could be used in the mixer together with the lime and ore necessary. The greatest thing, however, is that the life of the open-hearth furnace would be increased, for the foaming and boiling of the metal would not be so lively or continuous. In this way much less basic slag would be thrown up and carried by the gases against the acid walls, roof and ports, and into the slag pockets and regenerators.

The paper closes with a very complete list of the mixer installations in the German steel works, showing a total of 66. It also gives the details of the capacity, kind, method of heating if any, and the way the tilting or rolling is effected.

G. B. W.

The Swedish Iron & Steel Corporation Hunts Swindlers

A circular, of which the following is a copy, is being distributed throughout the country:

\$5,000 REWARD.

For evidence that will convict the parties who have been selling steel throughout the country, using the name of the undersigned without our authority. Their methods vary, but one is to solicit orders for small quantities of samples, then dictate to some assistant of the purchaser an order on the purchaser's forms for a large quantity, and by various methods to induce the purchaser to sign without careful examination of the order.

In the interest of mutual protection, we ask full particulars of those who may have been victimized.

SWEDISH IRON & STEEL CORPORATION,
12 Platt street, New York, N. Y.; 428 Race street, New Orleans, La.

It is announced by the corporation that crooked transactions aggregating at least \$500,000 have been perpetrated in the steel trade in the last seven years. For about five years the scheme was worked intermittently by two Frenchmen, operating in the names of French companies. The recent activities have been in the names of domestic companies, and whether they emanate from the same sources or are the work of imitators is a matter of conjecture.

The victims chosen were always of first financial rating. Sometimes they used only small quantities of steel in machine shops that were adjuncts to their business. Their names include candymakers, furniture firms, automobile manufacturers, weavers and spinners, mining companies, the tool trade, machine shops and countless others in New England (especially Providence, R. I.), Cincinnati, Cleveland, Columbus, Indianapolis, Brooklyn, New York, Buffalo and other large cities. Now the range has been extended to Arizona, at one end, and many Michigan cities, including Lansing, Detroit and Grand Rapids, at the other.

One effect of these operations has been to bring under suspicion salesmen seeking legitimate business. Some of them have found great difficulty, even with the best of credentials, in convincing manufacturers who had been victimized that they were what they represented themselves to be.

The British Iron and Steel Market

The condition of the British iron and steel trades, according to the Iron and Coal Trades Review of July 21, is as follows:

There is a slightly better tone in the pig-iron market, which has taken a somewhat more favorable turn again. Whether the change will prove to be merely one of the fluctuations experienced so often of late, or whether it is of a more permanent character, it is difficult to predict in view of the past experiences this year.

There is certainly a more sanguine feeling in the market now, however, and buyers are coming forward more readily. No doubt the news from the United States has exercised a stimulating influence upon the trade. Moreover, it is certain, in view of the activity in most branches of the finished branches of the trade, that the actual consumption of pig iron in this country must be increasing, and but for the failure of the Continental demand to expand to the extent which was hoped, the stocks in Connaught's stores would probably be decreasing. As it is, they are not increasing so rapidly as they were some little time back. It has also to be considered that what is usually the quietest time of the year is past, and next month should see a strong demand set in. Autumn needs, it is expected, will be heavier than usual, so many orders having been withheld of late owing to the uncertain state of the market.

In the finished branches of the iron and steel industries, the position continues to be of an encouraging character. Works are well employed generally, and the outlook is regarded as favorable, while, although prices have undergone no marked change, they are well maintained all round, and as a rule have an upward rather than a downward tendency. In regard to finished iron, the majority of bar makers in the Midlands are busily engaged. The heat has resulted in a curtailment of the output. A number of makers hold out for the top price for unmarked bars, although it is difficult to obtain more. Galvanized sheets have weakened somewhat in price.

The export demand continues good, and better than last year, but so many additional mills have been laid down that competition for orders is rather keen. The black sheet trade is dull, but makers of gas strip have a lot of work in hand. The demand for steel is active generally, and particularly so for shipbuilding material, the requirements for which are large in view of the flourishing state of the shipbuilding industry and the heavy tonnage under construction. Prices show no change. A distinctly stronger tendency is noticeable, however, and would doubtless take the shape of an actual advance were it not checked in some measure by the imports of German and Belgian material.

The strike of the machinists employed at the works of R. Hoe & Co., New York City, was declared off, July 29, following a conference between representatives of the company and of the workmen. The settlement provides that the work day be shortened from nine to eight hours, a quarter of an hour at a time, during given periods which shall expire July 1, 1913.

The International Harvester Company is preparing to establish a system of studying employees for evidences of incipient tuberculosis. The work will be carried through all the 19 branches of the company, and will affect 30,000 workmen. Experts will be employed whose duty it will be to study the individual employees until the plants are relieved of every possibility of contagion. The effort will be made to put the system upon the highest scientific plane.

The Riter-Conley Mfg. Company, Pittsburgh, has been awarded the contract for a steel and reinforced concrete pattern storage building, 75 x 100 ft., for the Pittsburgh Steel Foundry Company, Glassport, Pa.

S. H. Wheelhouse, Frick Building, Pittsburgh, sales representative for the Hooen, Owens, Rentschler Company, Hamilton, Ohio, manufacturer of Hamilton-Corliss engines, will also hereafter represent the interests of A. L. Ide & Sons, Springfield, Ill., manufacturers of Ideal high speed engines. This arrangement will permit him to sell a complete line of engines from 50 hp to the largest mill type.

New Publications

General Foundry Practice.—By William Roxburgh. Size, 5½ in. x 8½ in.; 296 pages; 161 illustrations. Bound in cloth. Price, \$3. Published by the D. Van Nostrand Company, 23 Murray and 27 Warren streets, New York City.

The author embodies in this book a knowledge obtained by many years' experience as a molder and foundry manager. The treatise goes into the many sides of foundry work, not only for iron but for the non-ferrous metals. As his experience has been in British foundries, the practice, as he describes it, differs somewhat from that established in this country, a fact which, in a certain way, adds to the interest. He handles the subject in several divisions: 1. General iron founding. 2. Jobbing loan practice. 3. Molding and casting the finer metals. Other chapters are devoted to practical metallurgy in the foundry, general pattern making from a molder's point of view, foundry ovens and their construction, fuels, and foundry tools. Carefully prepared tables of contents and index add vastly to the usefulness of the volume and copious illustrations make clear the details of descriptions of apparatus and methods.

Principles of Industrial Engineering.—By Charles Buxton Going. Size, 6 in. x 9 in.; 174 pages. Bound in cloth. Price, \$2. Published by the McGraw-Hill Book Company, 239 West 39th street, New York, and 6 Bouverie street, London, E. C.

The subject matter of this book is substantially the text of a series of lectures prepared under the auspices of the department of mechanical engineering of Columbus University, for delivery to senior students, and takes the form evolved from three years' experience in the classroom. It is adapted to meet the need for more general study as discovered by contact with non-technical audiences at Harvard and New York universities, and by inquiries addressed to the Engineering Magazine, of which Mr. Going is the managing editor.

The volume affords a standpoint from which to view the principal factors in the industrial problem, their relations and influences, and the properties and efficacies of the more important solutions so far proposed. Therefore the subject is handled in a broad and somewhat general way. A great many employers of labor stand in pretty much the same position with regard to a knowledge of these subjects as does the university student. Whatever thought they have given to industrial engineering has been so superficial as to be of little value. To such as these, as well as to students of the subject, Mr. Going's work has undoubted value.

Handbuch der Mineralchemie.—Edited by Prof. Dr. C. Doelter, director Institute of Mineralogy, University of Vienna. Part I of Volume I. Size, 7 in. x 10 in.; 160 pages illustrated. Price 6½ marks. Published by Theodor Steinkopff, Dresden, Germany.

An ambitious work calculated to interest students of inorganic chemistry, metallurgy and mining as well as of mineralogy and geology is being edited by Dr. Doelter with the cooperation of authorities in all parts of Europe and of one in America, Dr. Ing. R. Amberg, Pittsburgh. It is to be divided into four volumes, embracing all told over 3200 pages, with numerous illustrations, charts and tables. The first issue of the work now at hand covers Part I of Volume I, and is given over largely to carbon and carbonates of calcium, magnesium, sodium and iron, with chapters devoted to the diamond and to graphite, part of the latter subject being discussed by Dr. Amberg. The succeeding issues are promised to appear promptly, and the second and third parts of Volume I are to continue the carbon compounds, with chapters on magnesite, dolomite, etc.

German Pig Iron Production.—The production of pig iron in Germany in the first half of the present year was 7,682,000 metric tons, as compared with 7,202,000 tons in the same period of 1910, being an increase of 480,000 tons. This half year's output constitutes a record and corresponds with an annual production of 15,360,000 tons, while the quantity of pig iron made in 1910 only reached 14,227,455 tons.

Two Motor-Driven Garvin Grinders

Motor drive for machine tools is an advantage in a number of cases, and especially is this true in the case of grinding machines, which are not infrequently located in isolated places where the regular line shaft drive cannot be employed. In applying motor drive to the two grinders which are illustrated herewith, the Garvin Machine Company, Spring and Varick streets, New York City, has endeavored to utilize standard machines so as to give the advantages of prompt delivery and economical production cost without curtailing in any way the adjustments and the utility of the machines. Fig. 1 shows a surface grinder to which this form of drive has been applied, while Fig. 2 is a view of the company's standard No. 3 universal cutter and surface grinding machine.

The surface grinder illustrated in Fig. 1 is a standard type of machine with the motor mounted on two steel arms bolted to the side of the column. Interposed between the motor and the steel arms is a track upon which the motor can be shifted to provide the necessary tension for the lower driving belt. This belt transmits power to the shaft under the machine table and this shaft drives the spindle through a looped belt running around the inner pulley on it and the one at the top of the machine. A compensating device provides the tension for the spindle driving belt. The capacity of the machine is surfaces 7 in. wide and $9\frac{1}{2}$ in. long and varying in thickness from $\frac{1}{8}$ to 6 in. The power is supplied by a $\frac{1}{2}$ -hp. motor operating at a constant speed of 1650 r.p.m. and the domestic shipping weight including the motor is 450 lb.

The other machine is the builder's No. 3 universal cutter and surface grinding machine and will grind all forms of milling cutters from those having a diameter of 14 in. and a face width of 6 in. down to the smallest or surfaces measuring 6 in. in width and $9\frac{1}{2}$ in. in length with equal facility. The $1\frac{1}{6}$ -hp. motor employed with

and fully protected against the entrance of flying particles from the emery wheel. The weight of this machine is 435 lb.

Both of these machines are portable and can be set

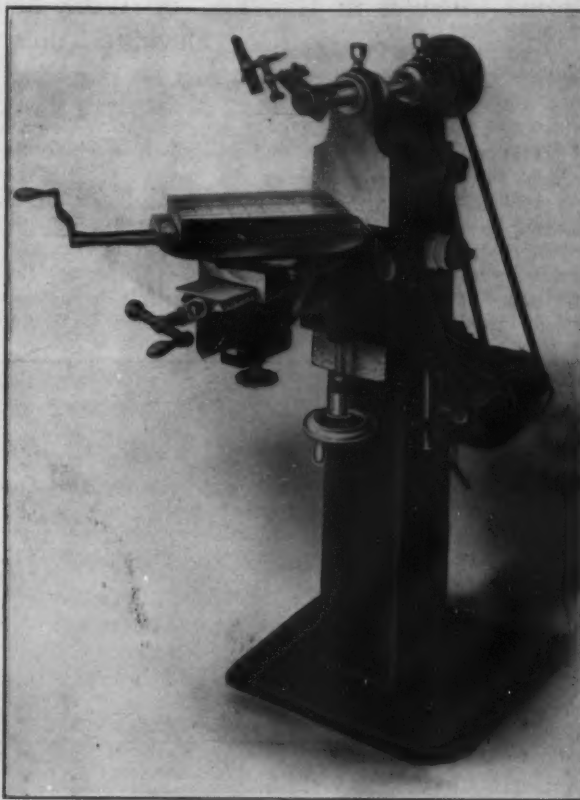


Fig. 2.—The No. 3 Universal Cutter and Surface Grinding Machine.

in any desired position, while, as they have no counter-shafts, discoloration of the walls and the ceiling in their immediate vicinity is avoided. The power for operating them is secured from the nearest electric outlet and the expense for power is low, as it is only required when the machines are at work.

The Youngstown Sheet & Tube Company's Annual Meeting

The annual meeting of stockholders of the Youngstown Sheet & Tube Company was held in Youngstown, Ohio, last week at which the old board of directors was reelected and an increase in the capital from \$10,000,000 to \$15,000,000 was authorized. This increase of \$5,000,000 is 7 per cent. cumulative preferred stock. It was also decided to continue the profit-sharing plan for employees for another year, and those participating last year in the profit sharing will receive 5 per cent. of their wages for the fiscal year. The preferred stock will be issued as needed, and the improvements contemplated at this time by the company, and practically decided upon, are an open-hearth plant of six furnaces and another blooming mill. There will be additional finishing capacity added, plans for which are now under way. Directors reelected by the company are as follows:

James A. Campbell, H. G. Dalton, E. L. Ford, C. D. Hine, George D. Wick, H. H. Stambaugh, John L. Severance, J. G. Butler, Jr., Robert Bentley, William Wilkoff, Richard Garlick. The directors will reelect the present officers as follows: James A. Campbell, president; H. G. Dalton, first vice-president; C. S. Robinson, second vice-president; George E. Day, secretary; Richard Garlick, treasurer.

At Johnstown, Pa., a reunion of the old-time steel workers, who were employed at the Cambria Works in 1871, when the Cambria Iron Company rolled its first rail of steel made by the Bessemer process, will be held in September. Some of these men are now located in Braddock, Homestead and other mill towns in the Pittsburgh district. An interesting programme is being arranged for their entertainment.

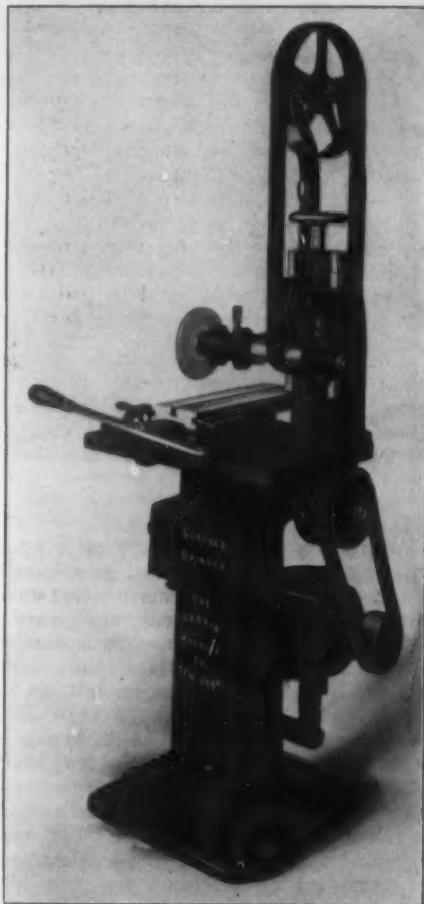


Fig. 1.—A Motor-Driven Surface Grinder Built by the Garvin Machine Company, New York City.

this tool is also of the constant speed type and makes 1800 r.p.m. It is bolted to the side of the column of the machine and has the required tension adjustment. The spindle, which is of hardened and ground steel, runs in boxes having an adjustment to compensate for wear

Shop System for Greater Output

Some Changes in Handling of Work and in Shop System in Order to Use Modern Machine Tools to Best Advantage

BY HENRY M. WOOD, CINCINNATI, OHIO.

It is not uncommon to find a modern machine tool which will give several times the output of one constructed a few years ago. In order to utilize to the fullest extent the possibilities of increased production when replacing old machinery with new, it is frequently necessary to make corresponding changes in former shop systems. It is the purpose of this article to describe briefly some features of works management and shop

to the assembling of the finished machine. Tags which accompany the material indicate the correct schedule of routing. To check up the work and see that the various pieces are promptly moved as scheduled, special trace clerks are continually making the rounds of the factory.

A graphic record of the progress of all parts through the shop is kept on a large blackboard in the superintendent's office. This blackboard lists all parts entering



Fig. 1.—View in Main Shop, Lodge & Shipley Machine Tool Company, Showing Aisle Reservation.

systems in use by the Lodge & Shipley Machine Tool Company, Cincinnati, which are of much assistance in keeping this shop as a whole keyed up to the pace set by modern high-speed machine-tool equipment.

Keeping Machines Busy

The ultimate aim of nearly all revised shop methods is to keep the machine tools operating as continuously as possible. The reason for this is evident when we consider that the greater the productive capacity of a machine the greater will be the loss in output if that machine stands idle. In addition to the loss of output it is more than likely that the new machine represents a greater first cost, so that somewhat heavier interest and depreciation charges would have to be met before the machine would show a profit.

Machine operators should never spend their time looking for work or waiting for work. We, therefore, have a shop rule that each operator shall be supplied with work for one day in advance. To insure that this rule is carried out and to prevent side-tracking of needed material, a complete system of routing has been worked out covering all of the shop departments through which each piece must pass from the receipt of the raw material

into the construction of our lathes by piece number, and opposite the piece number is painted prominently on the board a series of letters, one corresponding to each department through which that piece must pass while it is "in process." As soon as a lot of parts is moved from one department to another the letter corresponding to the department which the pieces have just left is chalked off on the board. Thus a glance at the blackboard shows anyone just where in the shop all pieces are located, and if certain pieces are falling behind the schedule the fact stands out prominently.

The former time-keeping system required each machinist to fill out his own time ticket. We now find it more economical to have special time-keepers periodically make the rounds of all machines and note all of the data, which heretofore each workman had recorded for himself. This new method of taking the time is used partly for the convenience of the cost department and partly to prevent an idle machine tool while its operator might make out his own time ticket.

Another important factor toward keeping the machines running is our errand-boy system, which has already been fully described in *The Iron Age*. Briefly stated, a number of boys do nothing but run errands for the ma-



Fig. 2.—Racks for Holding Bar Stock.

chinists (when called by push-button) to and from the tool room, etc. Thus a \$20 man is not occupied by work which a \$5 boy can do just as well. But it is of even more importance that the operator is thus kept at his machine so that the output is not even temporarily stopped.

Handling of Material

Adequate crane service in a factory building with a modern or heavy line of machinery becomes more and more essential with the introduction of more powerful machine tools. In Fig. 1 are shown two 12-ton overhead traveling cranes, which serve the center bay of the main shop. As this shop is over 800 ft. long, a series of signal lamps has been installed above the crane runway so that when one of the assembling hands needs the service of a crane he can easily make his wants known.

For moving the lighter pieces from one department to another tote boxes and trucks are used. We formerly had a narrow-gauge industrial railway for the trucking, but have since found it more economical to use an asphalt-paved courtyard where outside trucking has to be done and to keep the shop floors in good condition so that the trucks have equally smooth paths inside the buildings. This requires definitely marked-out aisles through the shops. The borders of the aisles are marked by white paint lines on the concrete floors and by iron strips nailed to the wooden floors. It is a strict shop rule that no material can ever be stored even temporarily within the limits of the aisles as marked by these "dead lines." Fig. 1 illustrates the clear aisle through the center of the shop.

Six laborers formerly did the trucking work. Recently we introduced an electric industrial truck, which we made ourselves, for doing this hauling. The truck itself is loaded with material to be moved and also hauls a trailer. These trailers are loaded in the different departments before the arrival of the motor truck, so that usually it is only necessary to unhook one trailer and couple on a different one, without delaying the truck. The motor truck makes the rounds of all of the departments on a regular schedule and with its aid two men are now doing the trucking which the six formerly did.

Study of the Machinist's Motions

Greatest output per machine demands, first, the absolute elimination from the operator's work of every duty, except that of running his machine continuously; and second, the study of the art of running that machine as efficiently as possible.

The study of the machine operations involves the setting of "standard time" for each job; that is, the shortest space of time in which the job should be finished complete. This rate setting should not be left to the foreman. It requires a full knowledge of the nature of the stock, the capacity of the machine and the efficiency

of the cutting tool. A stop-watch analysis of the separate operations is a great assistance.

All machine tools, even automatics, require more or less of an operator's attention. Since the earning power of the machine is lost while it is not running, it is important to study the motions the operator has to make in handling work in and out of his machine with a view of reducing the time thus lost to the smallest possible amount. The set of motions which the operator goes through in tending his machine should also be carefully investigated, as well as the motions necessary for preparing his tools.

As an illustration, the time required for changing the lathe dog on work turned between centers can be saved by providing the operator with two dogs. While one piece with dog attached is in the lathe and under cut the operator removes the second dog from the piece last finished and attaches it to an unfinished piece so that the new piece is ready to put between the centers immediately when his cut is finished on the job already in the lathe.

Never compel the operator to stoop continually to pick up small parts from the floor. His work should be placed by the laborer, who unloads the truck on racks within convenient reach and arranged in regular order. Fig. 2 shows a number of cast-iron racks used for holding bar stock of various lengths. Any length of stock can be accommodated by merely placing the stands the proper distance apart. Where machine work is being done on parts for which these racks are suitable the rack is placed within convenient reach of the operator.

On another class of work the operator may have to change his tools much more frequently than he has to change the work. It then becomes of first importance to arrange his tools conveniently. Fig. 3 illustrates a case of this sort. The part being machined is a 30-in. lathe apron which is clamped in the box jig shown on the base of the radial drill. All of the holes in this apron are drilled, bored, reamed and tapped at the one setting in the jig which, of course, requires frequent change of the tool in the drill spindle. The tools are, therefore, arranged in consecutive order on a bench close to the work-

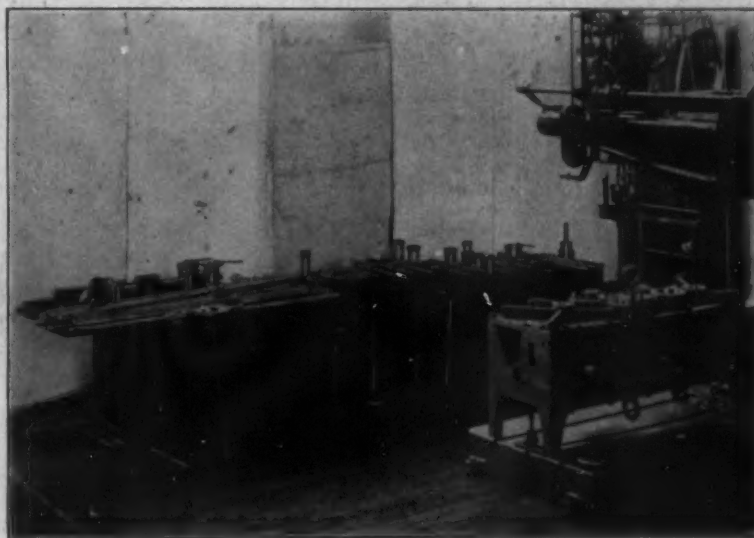


Fig. 3.—Tools Arranged in Consecutive Order Convenient for Workman.

men, as seen in the illustration. The tool first used is the one at the left and after each one in turn has been put through the jig the drilling of the apron is completed. Note the advantage of placing these several tools within easy reach so that when the operator lays down one tool he can pick up the next in the same motion.

Assembling Department Economies

Special stands suited to particular operations in the individual shops can often be introduced to good advantage; for example, we use for holding lathe carriages in the assembling department an especially constructed stand with a tilting top; thus at one setting of the carriage the operator can work at its top by having the table of his stand horizontal or with equal convenience can get at the front of the carriage by tipping it on edge.

Benches and racks should be arranged conveniently to

hold the small parts used in assembling as well as the assembled units. Fig. 4 is a general view of that portion of the assembling department where the compound rests, carriages, aprons and certain other small parts are put together. Running along the back of each bench is a rack for holding studs, screws, gears and such other small parts as are required in the making up of the completed unit. The stand at the right of each bench is used either for an additional supply of small parts or for a stock of the finished units. A detailed view of one of these same benches and stands is shown in Fig. 5.

Selecting the Men

An important point in successful management is to select men with especial reference to their fitness for performing the work expected of them. Operations are becoming more and more specialized in their character. The demand to-day in manufacturing plants is not so much for all-around machinists as it is for men who

foreman's work along this line we use instruction cards, on which the separate operations on a given job are explicitly stated. This card is continually before the workman. If for any reason he cannot perform the work in the manner or in the time specified on the instruction card he must report to his foreman at once.

Wage System

A successful wage system must offer increased compensation for the increased effort necessary to get out a greater output and must at the same time have the confidence of the men. We use a variation of the Halsey premium system with very satisfactory results to the men and to the firm. Each job in the shop is given a time limit. Each workman has his regular hourly scale of wages. If the workman completes his job in less than the time limit he is paid for half of the time saved in addition to his regular hourly rate.

After the premium system had been in operation for



FIG. 4.—General View of Small Parts Assembling Department.

are expert in some one branch of machine-shop work. It is expected that some men will be more apt at one line of work and others at another.

Most modern machine tools do not require all-around machinists for their operation. There is a tendency in design toward single purpose machines. Just as in the assembling department each man can best specialize on one line of work, so in the machine department it makes for greater accuracy, increased production and general economy to have each machine operator become expert in his particular line.

When a man of fair intelligence has just been selected for work which is satisfactory to him and to which he is suited, he will in most cases make good. Much depends, however, upon the foreman, whose duty it is to carefully instruct the men under him. We have found it advantageous to increase the number of foremen in proportion to operators so as to give better opportunity for the foremen to instruct the workmen under them.

In our opinion the foreman's most important work is to see that the men under him understand how to do their tasks in the most efficient manner. To simplify the

some time we found that some of the foremen were dissatisfied because a few of the men under them were making more than they themselves. We accordingly put the foreman also on premium plan. We now allow to each foreman personally 2 cents premium for each hour gained by every man in his department over the time limit. This gives the foreman an incentive to see that all of the men under him are not only kept busy but also are doing their work in the most efficient manner. The shop superintendent and his assistant also gain in the premium gain, each one of them receiving a fraction of a cent for ever hour gained in the whole shop.

Another portion of the company's share of the premium gain is laid aside to form a workmen's pension fund.

The straight bonus system does not give any incentive to do the work faster than the "bonus time." The straight premium plan does not give enough incentive to get the work out in what would under the other system be "bonus time." We have, therefore, adopted what amounts to a combination of the good points of both systems. On the instruction cards for a given job we state three times: First, "premium allowance," which is

the time upon which premium saving is based; second, "time consumed," which is a record time to show the workman that it is possible to very materially beat the premium allowance for working time; third, "time limit," which is placed midway between the two. No premium is paid unless the man makes the time limit, but if he does make the time limit his premium is based upon the premium allowance time. Thus he receives a considerable premium for equalling the time limit and more premium the more he exceeds the time limit.

So much has been written concerning the premium system as applied to other shops that we will not enter into details here. The ways in which our plan differs from those generally used are briefly mentioned because we have found that our broad application of premium payment is satisfactory to the men on pay-day and satisfactory to the company in shape of increased output.

Workmen's Attitude Toward New Systems

Co-operation of the employees is essential to the success of any shop system. The usual prejudice to be overcome in introducing new systems calling for more output is the workman's idea that greatly increased output will eventually result in throwing some men out of



Fig. 5—Details of Assemblers' Bench and Rack.

work. This is the objection the men offer to most labor-saving machines, and to most forms of scientific management.

The workmen should be shown that increased output means lower cost and greater demand. Greater production means greater total wealth for the community with correspondingly greater opportunities even if the field for some may be thereby changed to other lines. The more a man produces the more he is worth, and the most successful way of proving this fact to him is the premium system or the bonus system of wage payment.

The wage system and the nature of the premium or bonus must be governed to some extent by the character of the business and the wage system already in use. It is poor policy to try to force any new system upon the workmen without regard for the "human element." Habits are hard to break. Often a modern shop systematizer has made radical changes in old shop organizations, with the result that after he left the old practices were in many cases resumed, resulting in a confused state of affairs worse than the conditions which formerly existed.

If, before any new system is introduced, the men are consulted and shown why it is just as much to their advantage as to the company's, the chances of failure are very much reduced.

The Richard-Phenix Company, Milwaukee, Wis., manufacturer of appliances for lubrication, has opened a new engineering sales office in the Real Estate Trust Building, Philadelphia, Pa., under the management of J. F. McIndoe.

Aluminum Pulleys for the American Planers

Aluminum driving pulleys have been adopted by the American Tool Works Company, Cincinnati, Ohio, for use on its 36, 42, 48 and 60 in. heavy pattern planers. While this is a somewhat new departure in planer construction, pulleys of this metal have been applied to a number of machines in the company's shops to overcome certain conditions existing there. It was not the intention at first to make these pulleys part of the standard equipment, but the results obtained were so satisfactory and so much better than were expected that it was decided to use them on the large planers instead of the regular cast-iron pulley. Some of the advantages derived from the use of this metal are light weight, longer life of the belts and the development of less momentum.

Ordinary aluminum is about one-half as heavy as cast iron, but in constructing these pulleys a special aluminum alloy has been employed which reduces the weight still further since its specific gravity is only about one-third that of cast iron, the actual figures for the driving pulley used on a 36-in. planer being 105 and 35 lbs. respectively for the new and the old types of practically the same dimensions. This lighter weight results, it is felt, in an increase in the life of the belts used with the tool on account of the relatively small momentum developed. On a planer with a high countershaft speed the driving pulley acts to some extent as a flywheel and time is lost at each end of the stroke by the table overrunning. To overcome this the belts are made as tight as possible and the experience is they soon wear out because of the friction and the resultant heat produced in overcoming the pulley momentum at the instant the speed is reversed. As momentum is in direct proportion to weight, it is apparent that for the same dimensions and speed the American aluminum pulley will develop about one-third as much momentum as a cast-iron pulley with a corresponding decrease in the force which the belts have to overcome and maximum elimination of all overrunning as the belts can pick up more quickly.

It might be thought that the momentum of the table is responsible for the overrunning rather than that of the pulley, but as the amount of this energy stored up in a moving body is in proportion to the weight and the square of its speed, it has been calculated that the momentum of the pulley is 56 times that of the table when a cast-iron pulley is used and only 15 times when an aluminum pulley is substituted. Thus the substitution of aluminum for cast iron in the construction of the pulley has effected a reduction in the momentum of more than 70 per cent. It is stated that with the new pulley it is possible to make the planer belts 2 in. longer and secure much more satisfactory results, while the reduction in belt tension does away with the burning of the belt formerly experienced.

A test of one of these pulleys on one of the planers in the company's shop was recently made. A locomotive frame drilling machine table measuring 26 ft. 4 in. in length, and 30 in. in width and depth was planed on a 48 x 48 in. x 26 ft. quadruple-head multi-speed planer, having a cutting speed of 40 ft. and a return of twice that figure; the power was supplied by a 25-hp. electric motor. The total weight of the casting was 21,390 lb. The cutting stroke was 26 ft. 10 in. or 6 in. more than the length of the table to permit the tools used to lift and drop. As the table travel was only 27 ft., only three teeth of the table rack were in mesh with the bull wheel at the end of the stroke, and if there had been any over run the table would have run off the bull wheel.

The construction of the new aluminum pulley is very similar to the cast-iron one that is superseded, the only marked difference being in the design of the arms, which are made in the shape of an S. This form is used to provide enough elasticity to prevent the pulley from breaking on account of the arms shrinking away from the rim.

The stockholders of the Youngstown Foundry & Machine Company, Youngstown, Ohio, have reelected the old directors, who reelected the former officers as follows: W. J. Wallis, president; F. A. Williams vice-president and manager of sales, and B. G. Parker, secretary and treasurer. The company recently declared a dividend of 5 per cent.

An Improved Barb Wire Machine

Increased Production and Economy in Space and Labor Characterize the New Blashill & Gray High-Speed Rotary

Improvements resulting in the development of a new machine for the manufacture of barb wire have been made by Blashill & Gray, London, Canada, in the rotary machine which was illustrated in *The Iron Age*, January 5, 1911. This new model differs from its prototype in being a vertical machine instead of a horizontal one. Like the earlier machine the product of this new type is a single-strand coiled spring wire with the barb coiled around it instead of the ordinary two-strand twisted pattern where the barb is held in place between the strands. Among the advantages claimed for this machine are increased production at a lessened cost and a reduction in the amount of floor space and labor required. Fig. 1 is a general view of the machine, while Figs. 2 and 3 illustrate some of the details, the former being an enlarged view of the entire mechanism and the latter showing the barb adjuster which is the distinguishing feature. Fig. 4 gives the appearance of the barb after each operation in forming it.

The product of this machine differs from that of the other types now on the market in the method of manu-

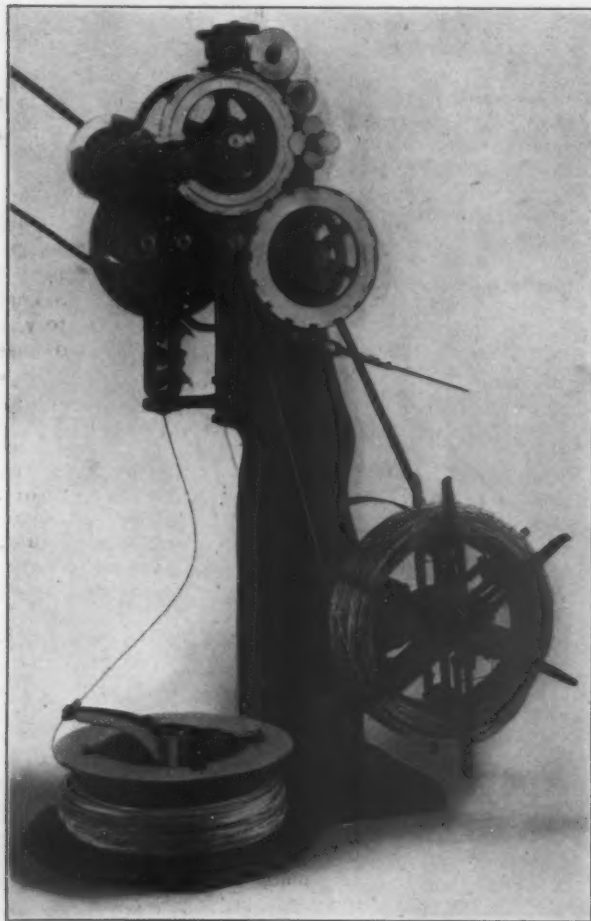


Fig. 1.—A New Type of Rotary High Speed Machine for Making Barb Wire, Built by Blashill & Gray, London, Canada.

facture of the barb. The common practice is to insert the barb between the strands and then cut it off. Here, however, the length of wire required for the barb is first cut off. The barb is formed as it passes through the machine afterward and is pressed solidly into position between rollers of a special form. Thus the quantity of wire used for the barb is greatly reduced since it is made with one wrap only and is pressed into shape to hold it solidly on an oval provided on the strand.

The advantages of the single strand as compared with the two twisted strands weighing the same are a reduction in the cost of production, including the material of 10

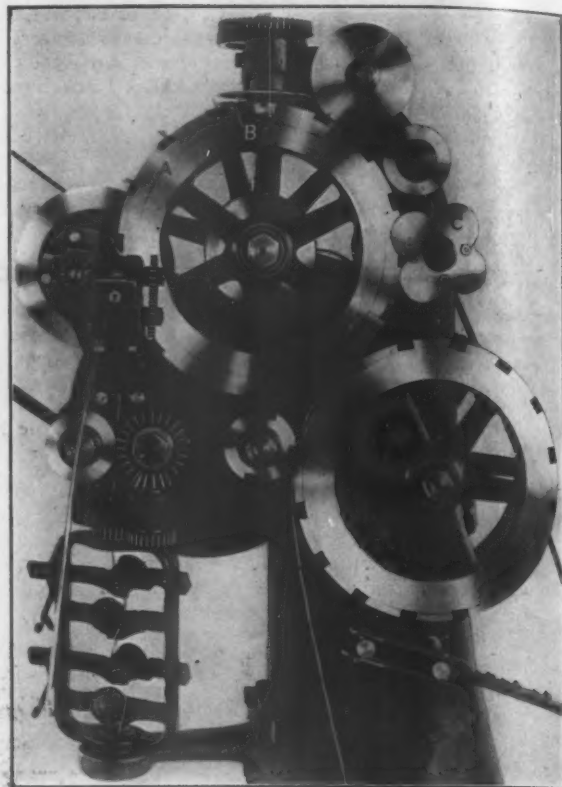


Fig. 2.—View of the Mechanism.

per cent.; a smaller surface to galvanize, quadrupling the output of the machine, increased strength and a reduction in weight of the finished product of 100 lb. in the amount of barbing wire required per ton of fence for barbs 3 in. apart, which is the spacing generally used. This reduction in the amount of barbing wire per ton is not secured by sacrificing the number of barbs and is due solely to the way in which they are made. The wire when coiled can be shipped without being placed on spools, which reduces the expense of production and the freight charges on shipments. The only protection required for the coil is afforded by three or four 6-in. bands of light tin or sheet iron.

The Operation of the Machine

In operation the wire is taken from the reel shown on the base of the machine in Fig. 1, and passes through the coiler which is almost directly above it in this engraving

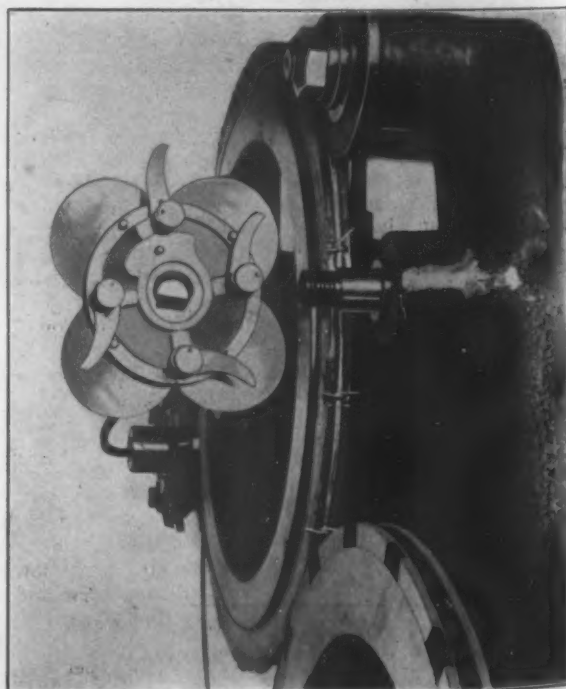


Fig. 3.—The Barb Adjuster.

and is shown enlarged in the lower left corner of Fig. 2. This device straightens the wire and takes out all kinks. From here the strand passes through a set of rolls provided with concave dies of hardened steel at regular intervals for forming the oval seats for the barbs on the wire. These dies compress the wire about 0.012 in. and widen it approximately 0.007 in. for a distance of 0.375 in. It will thus be seen that the reduction in the wire is very slight and can be made still less if desired as a compression of 0.008 in. is generally sufficient. An eccentric sleeve in its bearing enables the outer of these two wheels to be readily adjusted and the dies are easily replaced.

Leaving this set of rolls the strand next passes between the cutter roll at the left and the large disk wheel or roll A, Fig. 2, in the center and continues around in a groove in the circumference of the latter. The barbing wire is fed by rolls in between this strand and the large center roll and the required length is cut off by revolving cutters acting against a stationary cutter. This short piece of wire, A, Fig. 4, is carried upward by projections or fingers on these rolls and the center is forced by the strand into sockets in the dies of the large center roll where it assumes the form of a staple, B, and is carried to the crossing roll B, Fig. 2, at the top of the machine. The office of this disk is as its name indicates to cross the legs of the staple and wrap them lightly around the wire as shown at C, Fig. 4. The wrapping process is continued by the two plain hardened steel disks and is completed by the barb adjuster C, Fig. 2. The form assumed by the barb after these three operations is illustrated at D, E, F and G, Fig. 4, the last being an end view of the barb as it leaves the adjuster. An enlarged view of this part is

around the strand and provides a smooth and continuous motion at the rate of 1000 to 1500 barbs per minute. This high rate of production is secured by the absence of reciprocating parts while the machine is very convenient to operate. The amount of power consumed is moderate and is concentrated on the work.

The accompanying table gives the principal dimensions and specifications of the machine:

| | |
|--|---------|
| Diameter of heavy strand wire, in..... | 0.144 |
| Diameter of heavy barbing wire, in..... | 0.092 |
| Diameter of light strand wire, in..... | 0.104 |
| Light wire produced at 800 r.p.m., lb..... | 15 |
| Heavy wire produced at 600 r.p.m., lb..... | 25 |
| Diameter of driving pulley, in..... | 18 |
| Face width of driving pulley, in..... | 4 1/2 |
| Minimum speed of driving pulley r.p.m..... | 500 |
| Maximum speed of driving pulley r.p.m..... | 800 |
| Power required, hp..... | 9 |
| Barbs produced per minute, spaced 3 in. apart, minimum.... | 1,000 |
| Barbs produced per minute, spaced 3 in. apart, maximum.... | 1,500 |
| Overall height, in..... | 81 |
| Floor space required, in..... | 42 x 72 |
| Net weight, lb..... | 1,800 |
| Export shipping weight, lb..... | 2,100 |
| Contents of case, cu. ft..... | 40 |

If desired the manufacturer will equip the machines for handling both gauges of wire although this is not recommended, the better practice being to employ separate machines for the two sizes.

The Platt Iron Works Company's Affairs

The creditors' committee of the Platt Iron Works Company, Dayton, Ohio, has prepared a plan for the readjustment of its affairs, which is substantially as follows:

The committee shall acquire the property and good will of the company from the receivers or trustees, subject to a mortgage dated November 1, 1904, securing \$800,000 par value of first mortgage 40-year gold bonds, of which \$798,500 par value will be outstanding. The property thus acquired shall be conveyed to a corporation to be organized under the laws of Ohio having a name as similar to the old name as possible. The new company will then have approximately \$450,000 in actual value of inventory, material on hand, etc., and approximately \$180,000 of good collectible accounts and bills receivable, in addition to which the committee plans to secure \$150,000 cash capital for which the new company shall issue some form of comparatively long-term securities. The floating debt of the present company, aggregating approximately \$1,380,000, will be converted into securities of the new company, but the stock of the present company shall be eliminated completely.

The plan assumes that the receivers will have sufficient cash to meet the expenses of the receivership and of the committee. The committee reserves the full discretionary right to depart from the plan in any

respect and to exercise all powers conferred by the creditors' agreement of March 30, 1911. The receivers now in charge of the property are George R. Young and Dixon Boardman, who have authority to run the plant for 30 days, with possibly longer extension if advisable. The company manufactures pumping machinery, air compressors, oil mills, turbine pumps, waterwheels, etc.

The Chicago Pneumatic Tool Company announces an important change in the trade designation of its air compressors. These have been known as the Franklin compressors, the company's compressor works being located at Franklin, Pa. Because of the fact that its pneumatic tools, electric drills, rock drills and other articles of manufacture are invariably identified with the name of the company, the decision has been made to use the trade name Chicago Pneumatic as applying also to its air compressor product.

The Homestead Valve Mfg. Company, Inc., Pittsburgh, Pa., has appointed the McMaster-Carr Supply Company, 166-168 West Lake street, Chicago, its agent for Illinois and parts of Wisconsin and Iowa.

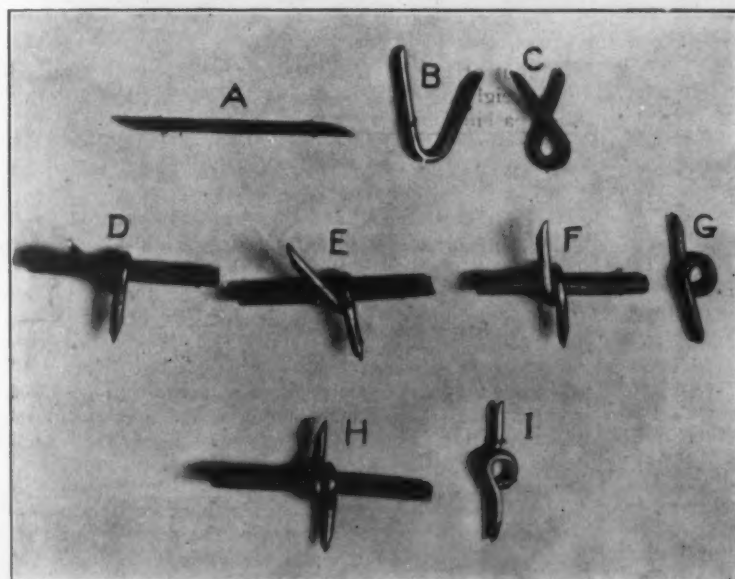


Fig. 4.—Successive Stages in Making the Barb.

given in Fig. 3 and its operation is clearly shown in the engraving by comparing the position of the ends of the barb above and below the threaded shaft projecting from the machine frame upon which it is mounted. The adjuster measures 4 in. in diameter and is made of hardened tool steel. In conjunction with its dogs and cams it forms the only departure from a simple rotary motion to be found in the entire machine.

The strand next passes over the large lower roll which is shown directly underneath the barb adjuster in Fig. 2. This wheel is so adjusted that the barbs are under sufficient tension when they pass under the dies with which it is equipped to maintain their position. The grooves in the circumferences of this roll and the smaller one to the left are of equal dimensions and between them the barb is pressed into position on the oval barb seat and the points project radially from the center of the strand as shown at H and I, Fig. 4, the former being a front view and the latter an end view of the barb in its final position. All the advantages of a double wrap are secured while at the same time a saving of 11/16 in. of wire per barb is effected.

The rotary motion can be utilized on account of the form of the barb and the way in which it is wrapped

The Simonds Lockport Steel Mill

The Simonds Mfg. Company's New Plant for Producing Crucible Steel for Saws and Machine Knives

The Simonds Mfg. Company, maker of saws and machine knives, with manufacturing plants at Fitchburg, Mass., Chicago, Ill., and Montreal, Canada, has during the past year built and equipped at Lockport, N. Y., an extensive plant for the production of its own special quality of high-grade crucible steel. Sheets, shapes and bars will be furnished to the several finishing plants for the manufacture of saws of all kinds—band, circular, cross-cut and hand—and machine, planer, paper and wood-working knives of all descriptions. The principal portion of the new plant has been in operation for several months, the first steel having been rolled on January 2 of this year.

In 1900 the Simonds Company first entered the steel-making business by building a plant in connection with its Chicago factory. Inability to secure from the then existing crucible plants steel possessing the special qualities required by the company for its high-grade saws made necessary this expensive move. In 10 years its steel requirements had outgrown the capacity of the original Chicago mill and it was decided by the directorate to establish an entirely new plant in a suitable location, conveniently accessible from all three of the factories.

Lockport, N. Y., a thriving manufacturing city with a population of 25,000 people, was selected as the location for the reason that it is about midway between the three finishing plants and possesses exceptional transportation facilities by rail and canal and practically unlimited Niagara electric power procurable under contract for a long term of years. The city is also a good labor market on account of its large number of varied industries. There are 80 acres in the site acquired by the company, which is just west of the limits of the city, contiguous to the Erie Canal and on the lines of the New York Central and Erie railroads, and the Buffalo, Lockport & Rochester electric line.

Buildings Covering 14 Acres

The buildings of the plant as they exist at present cover, with the immediate yards, approximately 14 acres. The accompanying general view shows the arrangement. The buildings are seven in number, comprising a gas house, melting shop or furnace building, rolling mill, finishing mill, band-saw mill, a transformer and electric power building and a laboratory and office building. The office building which is outside the general inclosure, is not shown on this plan.

All of the mill buildings proper are of structural steel construction with heavy galvanized corrugated iron siding and cement tile roofs, and have ample windows. The gas house has brick for a portion of its exterior walls and the transformer and power house is entirely of brick, with steel girder and concrete roof and concrete floor. The office building is of structural steel and brick with concrete floors and concrete roof. All the finishing mills have saw-tooth roofs with northern exposure for the glass side, providing the lighting necessary in order to insure the extra fine finish and strict inspection which every saw plate must receive before it leaves the steel mill.

Building No. 1, designated as the gas house, is 30 x 178 ft. and contains the gas producing system, which is composed of six Swindell-Siemens gas producers, and the necessary coal storage bunkers and conveyors. Pittsburgh gas coal of high heating quality is used. The gas is fed to the furnaces in the melting shop by pipes with suitable regulating apparatus. The building also houses a 250-hp Cahall boiler for heating the plant, driving the hydraulic pumps and serving the oil burning apparatus.

Adjacent to the gas building is the system of fuel oil storage, consisting of three 10,000 gal. tanks, located in a completely separate fire-proof building, which is partly below the surface of the ground. The tanks were designed and constructed by the Hydraulic Oil Storage Company, Detroit, Mich., and embody a system of storing oil floating on water, whereby the fuel is cleaned of all impurities by sedimentation. This system, which is com-

paratively new, has proved very successful in obtaining satisfactory heat regulation because of the absence of dirt in the burners. From the tanks the oil is delivered to the lines leading to the furnace burners by means of a motor-driven triple plunger single-acting pump, which maintains a pressure of 60 lb. at the burners. The lines are carried underground in steam logs with the steam pipes to insure fluidity, a method developed by the American District Steam Heating Company, Lockport, and used largely for its underground heating system.

The Melting Shop

The melting shop, 65 x 125 ft., Building No. 2, contains three 30-pot Swindell crucible furnaces of the Siemens type. In this building the making of the steel begins. Each crucible is prepared for melting by being filled carefully and accurately with the several ingredients, according to formula. The crucibles are of graphite composition, each holding about 100 lb. of metal. An ingot from each heat is sent to the laboratory for testing, and upon approval the product of the heat is passed to the cogging mill in Building No. 3, or put in stock to be used as required. Building No. 2 also contains a small electric furnace of the Girod type, which is now being run experimentally.

The north end of Building No. 2 is served by a 5-ton Alliance electric crane, covering the space between the bins and furnaces, where are located the scrap shears and muck iron shears and the storage scrap bins for the melting iron or muck bar, a large percentage of which is high-grade Swedish stock imported direct from the makers in Sweden, for it has an important part in the requirements of this steel.

The Cogging Mill and Circular Saw Plate Mill

In Building No. 3, 110 x 314 ft., are the cogging mill, in which, after the heating, the ingots are rolled into sheets; the circular saw finishing mill; and the shears for cutting the cogged sheets to length for finishing. The cogging mill consists of one stand of 24-in. roughing rolls and one 30-in. edging stand. The mill is gear driven by a 300-hp. General Electric 3-phase, 440-volt motor. This drive, as well as those of the other mills, was built by the Mesta Machine Company. The cost of power throughout the mill is \$18 to \$19 per year per hp.

The mill is served by two heating furnaces built by William Swindell & Bros., the hearth of each being approximately 6 x 18 ft. They are of the regenerative type, similar to the open hearth, and use crude oil as fuel. The cogging mill has a special lifting table operated by hydraulic power at a line pressure of about 600 lb. The screw-down mechanism is of simple design and is motor-driven. It is controlled by a master switch located at a point convenient to the operator, the automatic motor controlling apparatus being situated in the power house.

The circular saw plate finishing mill consists of two stands of 24-in. rolls driven by a 300-hp General Electric motor. The mill has two Swindell furnaces. After leaving the cogging mill the sheets go to the blocking-out shear, where they are cut to length for finishing into various sized saws. The building has a 15-ton electric crane built by the Cleveland Crane Company.

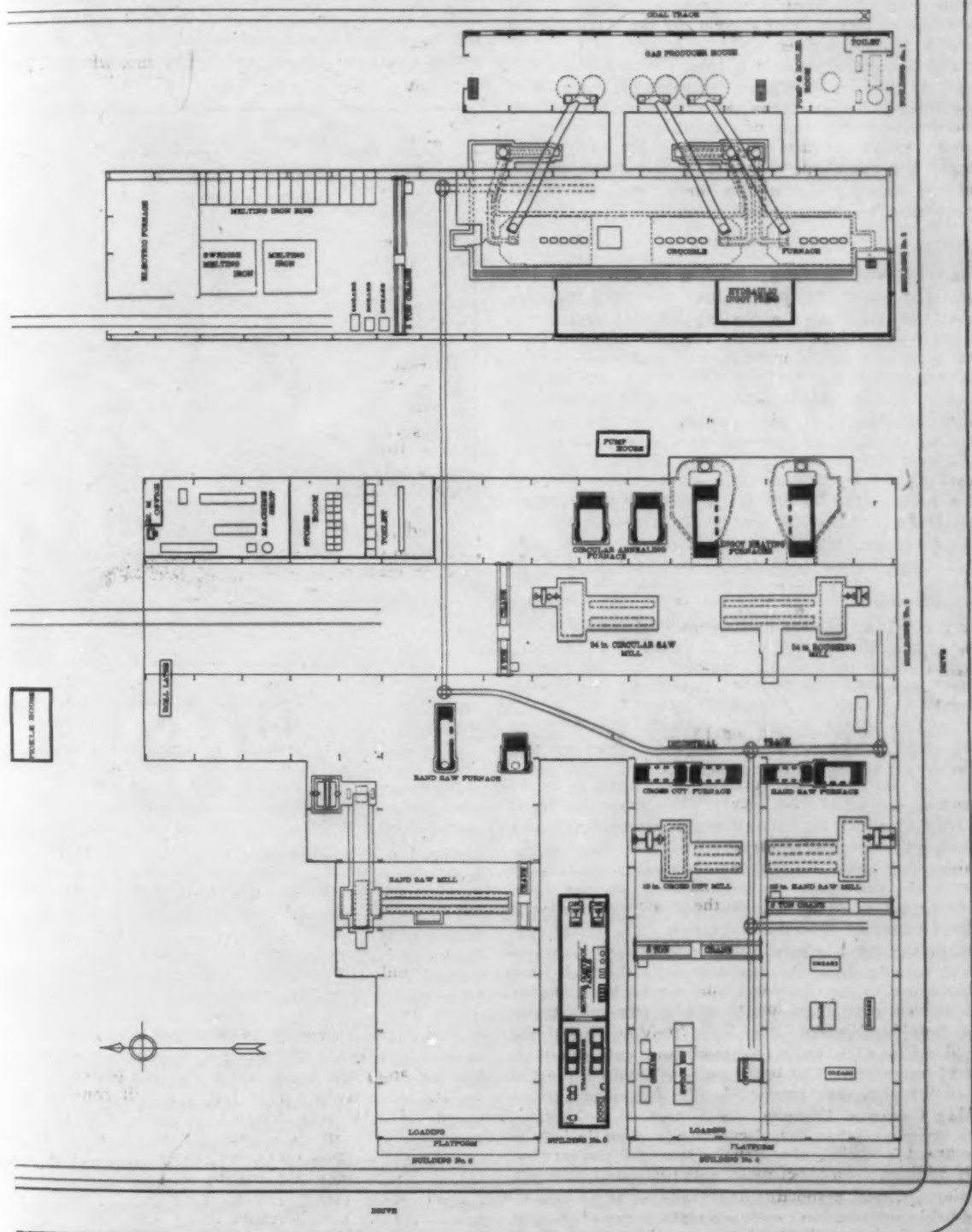
In this building are also the machine shop and roll turner shop, where necessary repairs of shop machinery are made; store rooms for the mill supplies, and toilet rooms for the shop employees fitted up with ample and convenient facilities, including shower baths and hot and cold water and having a locker department. The company, at all of its factories, has done everything possible for the comfort of employees. An artesian well has been driven which furnishes an excellent quality of clear and cold drinking water, which is delivered at various points in the mills and office by a motor-driven pump.

Other Finishing Mills

The hand saw finishing mill and the cross cut finishing mill are in Building No. 4, which is 110 x 154 ft. The

hand saw mill consists of one stand of three high 18-in. finishing rolls, and provision is made for one or more additional stands. The mill is gear driven by a 200-hp Westinghouse motor and has two Swindell oil-burning furnaces.

The cross cut finishing mill consists at present of two stands of 18-in. finishing rolls with a drive similar to that of the hand saw rolls. Provision is made for the addition of one or more stands. The building contains shears for cutting plates to shape, scrap shears and other mis-



Ground Plan of the Simonds Lockport Steel Mill.

cellaneous equipment. The two 5-ton floor-operated cranes were furnished by the Alliance Machine Company.

Building No. 6, containing the band saw mill, is 65 x 105 ft., with a bay about half its length on the north side in which are located the rope drive, motors, etc. The mill is of special design and together with its rope drive was furnished by the Mesta Machine Company. The special motor was built by the Allis-Chalmers Company, Milwaukee. Two Swindell furnaces are installed and a 5-ton Alliance crane serves the building.

The Power System

The transformer sub-station building and power house, Building No. 6, is 22 x 98 ft. Electric power at 12,000 volts is brought into the plant from the transmission lines of the Ontario Power Company from a sub-station located about a mile southwest of the plant. This voltage is stepped down through six 500-kw transformers to 440 volts. The station is equipped with the usual lightning arresters, high tension oil switches, recording meters, etc.

In the operating end of the power station is placed all

the automatic motor controlling apparatus, under the supervision of an operator. It is governed by a master switch at each of the mills whereby the mill operator can start, stop or reverse the mill at will.

The motor controls for the hand-saw, cross-cut and band-saw mills were built by the Cutler-Hammer Mfg. Company, Milwaukee, while the controls for the cogging mill, circular saw finishing mill and cogging mill screw down motor were furnished by the General Electric Company. Most of the meter equipment, including the graphic recording meters, ammeters, voltmeters, frequency and power efficiency meters, were supplied by the Westinghouse Electric & Mfg. Company.

In this building are also two 100-kw rotary transformers built by the Allis-Chalmers Company, each consisting of one three-phase 440-volt synchronous motor and one 100-kw direct-current generator furnishing current to a three-wire system at 220 volts between the two outside wires for the operation of cranes, a few small motors, and at 110 volts for lighting the works, etc. All of the electric wiring is in underground conduits.

The Laboratories

The office and laboratory building is 45 x 85 ft., two stories. The lower east half is used for office purposes and the lower west half for the experimental department. The latter is equipped with the requisite machine tools for the purpose, a 50-ton automatic and autographic Riché testing machine and numerous other special testing devices, and several gas furnaces fitted with pyrometers, etc., for experiments in the hardening and tempering of the various steels used in making saws, knives and files.

The west end of the second floor of this building is occupied by the laboratory which is at present running night and day. Its equipment is complete in every detail, the possibilities for making changes in equipment and improvements in methods afforded by the moving of the plant from Chicago having been taken advantage of so that everything is up-to-date. The greater part of the laboratory tables and fittings was put in by the Kewaunee Mfg. Company, Kewaunee, Wis. Adjoining the main laboratory is a small room 12 by 15 ft., used as a "balance" room and office for the chief chemist. Electric heating appliances are employed quite extensively in this department, including electric combustion furnaces for the determination of carbon in iron and steel by the direct combustion method; electric heating rings for crucibles, and electric drying ovens and hot plates.

The east end of the second story is taken up partly by the drafting room and office of the company's metallurgist and partly by a private laboratory for research and special work only, which is equipped on the same lines as the larger one and is very complete in its appointments.

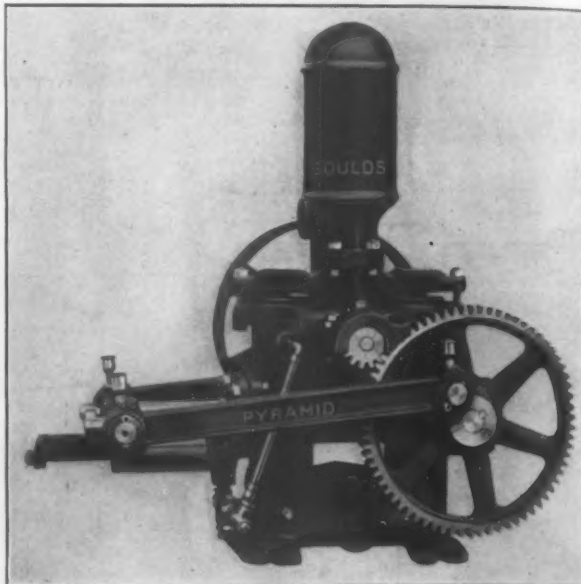
All of the sewers in the mills are of concrete, open type, to permit of ready cleaning and are covered with iron floor plates of special construction. The sewer system converges to a central dump pit, where the waste water is brought from the low sewers to the high level and discharged to the city sewer with a 5-hp Worthington electric-driven centrifugal pump and a 1000-gal. steam-driven centrifugal pump. Provision has been made for the installation of a second motor-driven unit should it be found necessary. The cement tiling required for the roofs of the plant was supplied by the American Cement Tile Mfg. Company, Wampun, Pa.

The complete plans for the Simonds plant include a bar mill, and it is likely that definite steps for the erection of this additional building will be taken shortly. While increasing its steel manufacturing facilities, the company spared neither expense nor effort in making use of modern scientific methods for the production of the various kinds of steel required for use in making Simonds saws, knives and files. The management therefore prides itself on having secured a model plant among crucible steel mills of its size.

Statistical tables of lead, copper, zinc, tin, aluminum, nickel, mercury and silver have been published by Metallbank und Metallurgische Gesellschaft, Frankfurt-am-Main, Germany. It is a book of 154 pages, giving the production and consumption of different countries and the prices prevailing over a term of years in various centers for different metals.

Air Cylinders for the Pyramid Pumps

To enable its Pyramid double-acting piston pump which was illustrated in *The Iron Age*, October 6, 1910, to be used for pneumatic water system pumping the Goulds Mfg. Company, Seneca Falls, N. Y., is placing on the market a special air cylinder that is intended to be attached to the 3 x 5 and 4 x 5 in. sizes. A special feature of the attachment is its compact construction. The use of this cylinder does away with the necessity of a separate pump for maintaining the air pressure required by these systems to force the water from the storage tank through the distribution piping connected thereto, and makes it possible to have a



A New Type of Air Cylinder for Use in Connection with Pneumatic Water System Pumping on a Pyramid Pump, Built by the Goulds Mfg. Company, Seneca Falls, N. Y.

supply of running water for fire protection and other purposes.

The cylinder is designed to withstand a pressure of 75 lb. per square inch, which is the maximum pressure against which the pump will operate satisfactorily. When pressure is not required the pump is relieved of all pressure by opening the air cock with which the cylinder is equipped and which prevents the air from entering the tank. Brass is employed in the construction of the cylinder and the suction and the discharge valve. The piston rod of the pump operates the plunger, which is packed with leather cups. One set of bolts serves to hold the cylinder head and the cylinder bracket rigidly in place. The pipe leading from the air attachment is connected to the drain plug opening or the discharge chamber of the pump.

A 600-hp blower of the so-called free diffusion type has been put in operation at Great Falls, Mont. The characteristics of the type were referred to at the Pittsburgh meeting of the American Society of Mechanical Engineers by R. N. Ehrhart of the Westinghouse Machine Company, East Pittsburgh, Pa. He explained that in a blower with radial vanes the air leaves the rotor at an angle of about 14 deg. with the tangent at normal delivery; that at 50 per cent normal delivery the angle is about 7 deg. and at 10 per cent normal delivery it is about 1½ deg. It is held that if the receiving ends of the diffusion vanes of the so-called forced diffusion blower are set for normal delivery they are 12½ deg. from the correct position for 10 per cent normal delivery, or 7 per cent from the correct position for 50 per cent normal delivery.

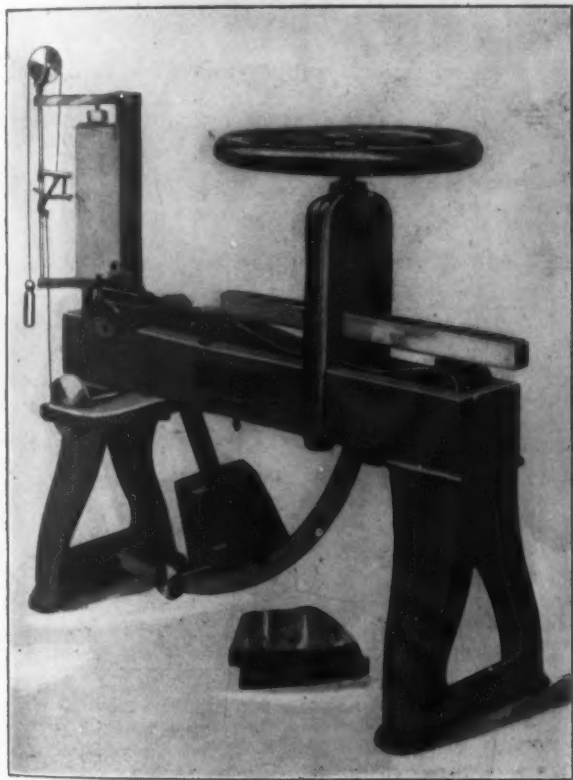
The Chester Steel Casting Company, Chester, Pa., recently shipped for export a heavy cast steel field ring, the net weight of which was 36,091 lb. The inside diameter of the ring was 12 ft. 7½ in., its face was 34 in. and it was 8 5/16 in. thick.

Autographic Transverse Testing Machine *

A New Type for Research Testing or Regular Foundry Practice

BY THORSTEN Y. OLSEN, PHILADELPHIA, PA.

It is customary in general foundry practice to apply the transverse test to cast iron to determine its physical characteristics. The tension test is also largely used, but this requires a much heavier and more expensive machine and, owing to the brittleness of cast iron, the specimen must be specially prepared and special care taken in holding same in the machine to obtain the best results. The transverse specimen requires no machining, and as most generally used is either 1 x 1 in. in section, with 12 in. between supports, or 1 x 2 in. in section with 24 in. between supports. The former size has most generally been adopted and the transverse breaking load is then approximately 1/10 of the tensile load of the same cast iron. The dimensions of these specimens are very good, they are easily cast, and machines for testing them transversely are very small, compact and inexpensive, so that they are well within the reach of any foundry interested in the quality of its daily output.



A New Type of Autographic Transverse Testing Machine for Research Testing or Regular Foundry Practice, Built by Tinius Olsen & Co., Philadelphia, Pa.

The foundry testing machines as made up to the present time give very accurately the transverse breaking load as well as automatically note the deflection of the bar by a pointer moving in the arc of a circle over a graduated scale. The results so obtained are very good as far as they go, but today we see a desire for a more complete machine for this purpose, one that will automatically trace the stress strain diagram of such magnification in deflection and of such scale in noting the load applied, that the curve will show the deflection for any given load readable to 0.001 in. to the breaking point of the specimen. Any slight variation in the strength, stiffness or behavior of the test sample, due to varying the mixture or in the treatment thereof, can thus be quickly and conclusively determined.

To make an autographic transverse tester successful, it is essential that it be adapted to a test bar as used in general practice in this country today and that it must be arranged so as to automatically trace the stress strain

diagram, also be simple in construction and of moderate cost. To cover these various points in a machine of this kind, a pendulum balance system of weighing was adopted as being the most sensitive and accurate automatic device available. The illustration shows the general appearance of a completed machine of 5000-lb. capacity for testing the 1 x 1 x 12 in. specimen, and a larger machine of 5000-lb. capacity for 1 x 2 x 24 in. specimen is similar in all respects to the smaller machine.

The specimen is placed in the machine as shown, and pressure applied by the screw and hand wheel, thus deflecting the bar. The pressure on the specimen is transmitted through a lever system to the weighted pendulum, and raises the pendulum, thus automatically weighing the load on the graduated arc as shown beneath the bed of the machine. The pendulum is arranged so its weight may readily be changed by the addition of side pieces as shown, so that the machine may be used with a capacity of either 2500 or 5000 lb., depending upon the strength of the sample being tested. The pendulum, in its motion, rotates the autographic drum shown, so that the load on the specimen is traced as the abscissæ of the diagram card. The deflection is measured by the motion of a follow pin placed directly beneath the center of the specimen and which is connected to the recording pencil in such manner that its motion up and down, i.e., the ordinates of the curve, measure the deflection up to 1/4 in. magnified twenty times.

The curve sheet is 5 in. square, the abscissæ reading to a maximum of either 2500 or 5000 lb., and the ordinates reading to a maximum of 1/4 in. so that 0.001 in. may easily be approximated. The pen is held against the recording drum by a very light torsion on the cord attached to the pen carriage, and the curve sheet is held on the revolving drum by clips, and both the drum and the pencil may be adjusted so that the pencil will commence to trace the curve at the zero point of the curve sheet. A series of pawls operate so as to catch the pendulum in the rack on breaking the specimen and the pendulum is released and returned to the initial point of rest by turning the knob as shown.

This machine is so easy to operate that it takes very little more time to make a test obtaining the autographic record than it does to operate a plain machine determining only the maximum load and corresponding maximum deflection. The machine is also more accurate than a plain lever machine as the load may be applied uniformly, without stopping to weigh the load, which, if accomplished on a lever machine, requires two operators, whereas only one is required in the use of the autographic machine. The curve, as obtained, is very even and uniform, and makes a record which can readily be filed away for future reference.

Safety Measures May Be Too Thorough

The extremes of safeguarding life in manufacturing plants were referred to in an extended discussion on the subject in the July Journal of the American Society of Mechanical Engineers by W. W. Alexander, of the General Electric Company, West Lynn, Mass. Half-way measures, he admits, are worse than none at all, but he submits a word of caution that there is also the danger of going too far. Some men have endeavored to cover up every little crack or open space about a machine into which a man might be able to put his finger while the machine is in motion. We are in danger, he says, of making workmen fools as far as looking out for their own safety is concerned. If a man is trained to consider every machine on which he works so safe that he can sleep all over it, so to speak, without getting hurt, he is surely bound to be caught and injured sooner or later when he is called upon to work on some other machine that is not so fully safeguarded; and there are thousands of machines in daily operation now which can only be safeguarded in time, and even then perhaps not as completely as new ones built with a view to proper safeguards.

The H. W. Johns-Manville Company will occupy its new 12-story building at Forty-first street and Madison avenue, New York, May 1, 1912, for the general offices and the New York salesrooms. The structure will be unique in its early Italian Gothic architecture, and will be known as the Johns-Manville Building.

*Paper presented at the annual meeting of the American Society for Testing Materials held at Atlantic City, N. J., June 27 to July 1.

A Steel Transformer Car

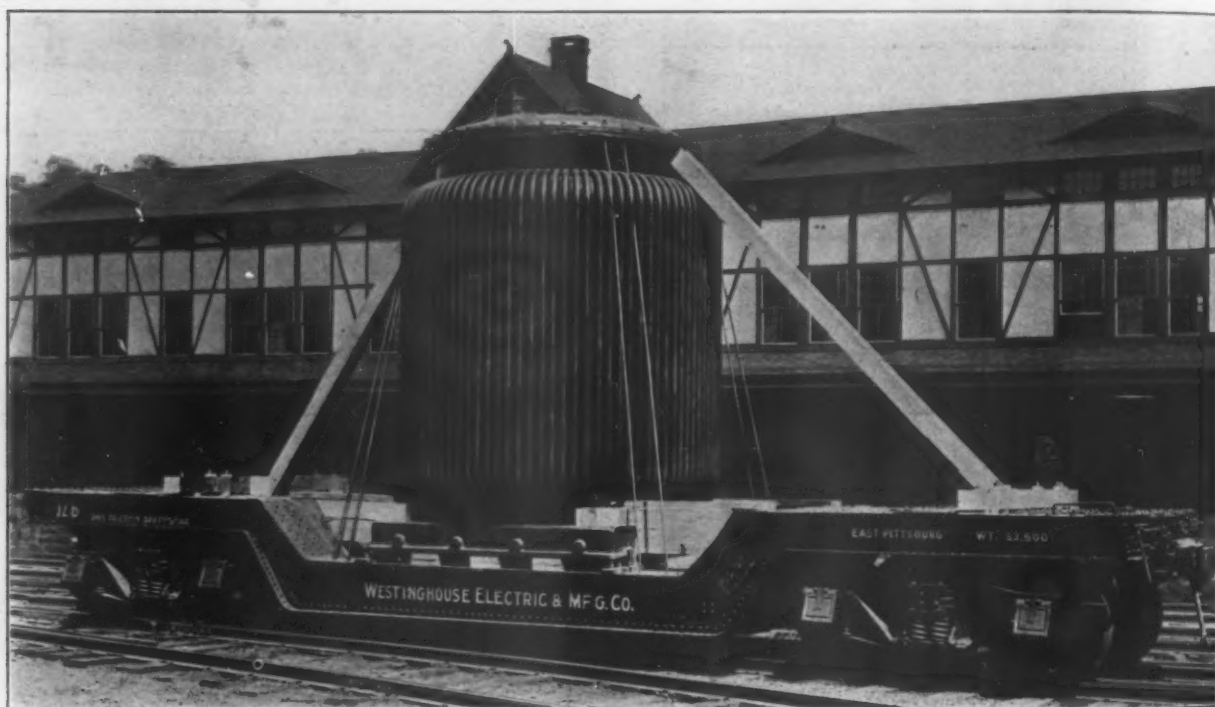
Wherever possible it is the practice of the Westinghouse Electric & Mfg. Company, East Pittsburgh, Pa., to ship its large transformers completely assembled and ready for installation and immediate use upon arrival at their destination. The steady increase in the capacity, size and weight of these transformers has rendered this mode of shipment more and more difficult and some time ago special steel cars with a strong central floor suspended on a level with the axles from heavy side frames were built for this company. These cars could accommodate a load of 70,000 lb. in the well, but were totally inadequate for the 2000-kva. tubular transformers which this company is now building.

To meet the demand for a larger car the engineers of the Westinghouse Company and those of the Atlas Car & Mfg. Company, Cleveland, Ohio, held a consultation with the result that the car, which is illustrated herewith, was built. The design of this car was approved by the engineers of the Pennsylvania Railroad before work was commenced. The car is built entirely of steel, measures 35 ft. 5 in. in

Delaware and Virginia to Pinner's Point near Norfolk, Va. From here it was shipped over the regular railroad lines to its destination.

Efficiency of Pipe Line Carrying Superheated Steam

High efficiencies with superheated steam transmitted over long distances are shown in the case of a steam pipe line at the plant of the Joseph Schlitz Brewing Company, Milwaukee, where a 4-in. pipe line 11,700 ft. in length is in use, designed to carry steam at 120 lb. pressure, and 250 deg. superheat. The steam is for use in a pumping plant of 18,000,000 gal. capacity. The steam is taken from Babcock & Wilcox boilers with superheaters, and the equipment also includes a Foster separately fired superheater. The pipe line was designed by J. C. White for D. W. Mead, consulting engineer, Madison, Wis., and the tests with the pipe line are reported in Bulletin No. 347 of the University of Wisconsin by Halsten Joseph Thorkelson, associate professor of steam engineering. The piping is covered with $\frac{2}{2}$ in. of 85 per cent. magnesia covering, and is enclosed



A New Type of Steel Freight Car for Transporting Transformers Used by the Westinghouse Electric & Mfg. Company, East Pittsburgh, Pa.

length and has capacity in the well of 75 tons. Where it is possible to distribute the load over the end platforms as well as in the center the capacity is 205,000 lb. In spite of this great capacity the level of the floor in the well is only 26 in. above the top of the rail, thus giving a maximum clearance under bridges spanning the right of way. The car frame is of heavy built up steel girders and the trucks are of 205,000 lb. capacity with 6 x 11 in. journals, 33-in. rolled steel wheels and M. C. B. springs of extra large capacity. Wrought steel center plates are used and the journal boxes, riders, brasses, etc., all conform to the M. C. B. requirements for 205,000-lb. capacity journals. The equipment of each car includes Westinghouse air brakes and friction draft gear and M. C. B. automatic couplers. The weight of the car is 53,000 lb.

Three of these cars have already been delivered and the accompanying illustration shows one of them loaded with an oil-insulated tubular self-cooling, 2000-kva. transformer. These transformers are to be installed on the 60-cycle high tension lines of the Southern Power Company at Newberry, S. C., 15 in all being used. When the transformer was loaded on the car, the extreme height above the rail was 16 ft., and on account of limited clearance in tunnels in the Allegheny Mountains and at Baltimore the shipment was routed in a round about way which included portions of New York, Pennsylvania, Maryland,

in a 3 x 4-ft. concrete tunnel. The average per cent. drop in pressure was about 5 per cent., and the average loss per square foot of pipe surface per hour was 160 B. t. u. per hour. With the moderate degree of superheat, the loss in temperature was about 1 deg. for every 20 ft. of pipe, while when the Foster superheated was in use the loss in temperature was about 1 deg. for every 9 ft. of pipe. From the test it was concluded that the efficiency of the pipe line at full load, that is the amount of heat delivered at the end of the pipe line, was 96 to 97 per cent. of the amount of the heat delivered at the beginning of the pipe line.

A development of considerable importance in its bearing upon large central station work is to be noted in a recent order placed with the Westinghouse Machine Company, which included a No. 20 twin type LeBlanc condenser. This unit, which is simply a combination of two No. 20 standard Westinghouse LeBlanc outfits, is equipped with two sets of air and circulating pumps mounted on a common shaft. Couplings at each end of the latter provide for either turbine or motor drive. The condenser is designed to handle approximately 8,000,000 lb. of water per hour, and will operate in connection with a 12,000 kw. turbine in the Manchester street plant of the Rhode Island Company, Providence, R. I.

Accidents with the Metal Press

Interesting Explanation of Their Cause—Methods of Prevention

In an extended discussion of the field of the mechanical engineer in the prevention of accidents, in the July issue of the Journal of the American Society of Mechanical Engineers, Oberlin Smith, president of the Ferracute Machine Company, Bridgeton, N. J., participated in respect to the special problem of the metal press. He spoke of the semi-involuntary method of machine operation acquired by the worker and the ease of its temporary disturbance and outlined the desirable modifications in feeds to presses. His discussion is, nearly in full, as follows:

Disturbing Rhythm of Operator's Movements

A frequent kind of accident pertaining to a power press is the contusion or shearing off of fingers and hands by being between the dies when they come together. This often occurs through pure carelessness on the part of the operator. In cases where he lets the ram of the press run continuously, trusting to luck and to a certain acquired automatic rhythmic movement of his hands, any mental disturbance of the rhythm, as a sudden movement or noise in his vicinity, or a desire to look round for something happening in the street, may prove disastrous. Of course this cannot occur if the machine is arranged as it should be, so that his fingers cannot possibly go between the dies.

A more frequent accident occurs when the ram of the press is allowed to stop between each stroke by the action of the automatic stop-clutch generally embodied in these machines. Each operation consists in placing the work between the dies and then depressing the treadle, or in some rare cases a handle, which throws the clutch into mesh so that the continuously revolving flywheel operates the shaft through one revolution and then stops it. This performance is safe even if the fingers have been between the dies, providing they are taken out before the treadle is depressed and not put in again until the ram is surely stopped in up-position. It often happens, however, especially with piece work, that the treadle is depressed almost immediately after the ram is stopped so that again there is needed a certain rhythm common to the finger motions and the halting continuity of the ram motion. Under these conditions it is probable that most of the accidents happen because the treadle is not allowed to rise entirely to its upper position, that is, far enough to insure positively the stopping of the ram. In such a case it comes down a little sooner than is expected, and an injury to the hand is the result. A remedy for this evil has been devised by the writer and some other press makers in the shape of a device by which the clutch-lever detaches itself from the treadle action, each time the latter is depressed, by means of a cam upon the main shaft, which itself performs the stopping action of the clutch. This, if kept in order, will provide safety and is a valuable device.

Accidents Caused by Dirt or Lack of Lubrication

A similar trouble may happen by the clutch's being out of order so that the treadle and tripping device, often known as a clutch-lever, do not rise as promptly as they should, owing to the binding of some parts, or the weakening of springs which, perhaps, have not been kept in proper adjustment. An occasional trouble causing the ram to descend unexpectedly is the cutting or seizing of the flywheel, or gear upon the shaft. This, of course, is due to the lack of oil, or the presence of dirt, or both, between the wheel and the shaft. Nothing but correct automatic lubrication would seem to be a cure for it, and this is not usually applied to presses.

Types of Feed to Presses

Considering first, primary operations, as the working of cutting, punching or shearing dies, all of which may easily be protected, the most usual feeds are:

(a) Single or double roller-feeds, where the flat sheets or bars of metal or other material are held by spring pressure between intermittently revolving rollers.

(b) Reel-feeds, where flexible metal or other material,

in strips, is pulled through the dies from one reel with a brake upon it by another intermittently revolving reel upon which it is rewound.

(c) Grip-and-push or pull-feeds, generally made with a pair of stationary grippers and a pair of reciprocating sliding grippers, these latter alternately gripping the edge of the material and carrying it through the dies any desired distance at each stroke of the press.

(d) Gravity-feeds, where the press ram axis is inclined at an angle to the vertical, perhaps even to a horizontal position, and the material descends by gravity against a let-off gauge, placed back of the dies, working automatically.

Concerning feeds for seconding operations the most usual kinds are:

(e) Dial feeds for redrawing, forming, curling or repunching work. A common well-known form consists of an intermittently rotating disk in the respective apertures of which the work is put by hand at the front of the press, far away from the dies, and is carried around until it reaches them, in some cases a group of dies performing successive operations upon it.

(f) Friction-disk feeds, where the articles are pushed from a table on to a flat revolving disk which carries them by friction between certain fences or guides and which delivers them under the dies. They are stopped by a let-off device to limit the motion of each one as it arrives in final position.

(g) Push-feeds, where a sliding carrier comes forward to receive the work and then carries it back between the dies again, coming forward for another piece.

(h) Tube-feeds, used especially for small articles like coins, medals, etc., which are piled upon each other in a tube and allowed to descend by gravity so as to be fed to the dies by any one of the methods, *e*, *f* and *g*, usually, however, with the last.

Feeds *f* and *h* are practically safe against hurting the fingers, while with *e* and *g* there is some little danger of getting the fingers in the feeding device itself, if they are not removed quickly enough before it starts; they cannot, however, be easily carried back to the dies. When devices of this sort are used, by stopping the press at each stroke while the work is being placed in the dial, or carrier, absolute safety is assured.

Safety Device for Hand Feeding

Returning to the consideration of hand feeding: With thin metals, mere cutting operations can be made entirely safe by using a proper stripper surrounding the punch. This should fit very close to the punch and come down as close to the top of the die as possible to allow the metal to go between, and it should be quite thin so as not to obstruct the view of the work outside the limits of cutting. It should also be so high that the punch at the top of its stroke never comes entirely out of it, thus giving no chance for fingers to be put in above it. With thick metals, the stripper has obviously to be placed so high that fingers can be put in under it.

In the case of forming, repunching, etc., where small objects must be located between the dies and sometimes a considerable distance in from the front thereof, it is nothing but criminal to allow the operator's fingers ever to go between. The inserting and removing of the work should always be done with a stick of pine wood, or some other soft material, which will not damage the dies if they happen to come down at the wrong time.

Extra Cost of Automatic Guards and Feeds

In general, where hand feeding is resorted to, there is no universal panacea for the evils in question. Careful attention to all of the points above mentioned, however, will reduce the percentage of danger to a very small figure, especially if there is any such rigid discipline, backed both by altruistic and financial motives, as will absolutely prevent fingers being put between dies. It may be stated that in any ordinary press shop where thousands of different kinds of work are to be done, and perhaps only small batches of a few thousand, or a million or two, of pieces are to be made, it is very expensive to provide all of the different kinds of automatic feeds and guards that would be needed for the varying kinds of work. If, however, we should get our much-desired uniform state laws providing reasonable penalties for the carelessness and parsimony that produce our present numerous ac-

cidents it is probable that the volume of them will greatly decrease.

The writer has frequently had inquiries for safety apparatus for a room full of presses, but has always been obliged to reply that each press and each pair of dies must be considered separately, and that much expert designing would have to be done for special devices to suit each varying condition. Some of these would, of course, be simple, but others would have to be automatic in their character and, on the whole, quite expensive. Hence, not many press manufacturers have gone into the matter thoroughly, principally because they know that their competitors would not be obliged to do the same.

New Landis Threading Machines

Three Recently Developed Motor-Driven Machines for Bolt Work

Many novel and distinct features as compared with the threading machines now on the market and those which the Landis Machine Company, Waynesboro, Pa., has formerly built characterize the new types of motor-driven threading machines which this company has recently developed. Some of the special features of these new ma-

within the range of the machine without employing an extra lead screw, the necessary changes being secured by changing gears. All of the main spindles have recesses which return the lubricant to the oil tank and prevent it from being spattered or thrown on the floor.

The $\frac{1}{2}$ -in. double head bolt threading machine which is illustrated in Fig. 2 is equipped with steel guides instead of cast iron ones as has been the common practice with builders of this type of machine in the past. Steel guides possess the advantages of being made to conform accurately to the desired size and maintain perfect alignment at all times unless affected by wear after long continued usage. Wear when it takes place can be easily overcome by supplying new guides at a slight expense while in the case of a machine having cast iron guides the wear cannot ordinarily be compensated for especially if it is not equal on all portions of the guide. With this type of guide also there is no tendency for the chips to collect and cause wear. The machine is built with a wide body and an ample space for chips, the latter being separated from the oil tank in the base by a fine screen. The oil pump used in connection with the lubricating system is of the rotary type and is mounted on the rear of the machine. While the carriage is light, it is nevertheless of very strong construction and can be easily operated for rapid production. On account of the high speed for which this machine is designed the dies furnished are almost exclusively of the high-speed steel pattern.

The standard 1-in. double head bolt threading machine shown in Fig. 3 is equipped with a constant speed motor driving through a silent chain. The motor is mounted on top of the machine out of the way of dirt and oil, an arrangement which makes the equipment very compact and takes up the minimum amount of room. Speed changes are secured through a mechanical speed changing device having a range of $3\frac{1}{4}$ to 1 and any of these can be obtained while the machine is in operation without loss of time. Like the double head bolt cutter this machine is also adapted for high speed work. The carriages on this machine which are either of the rack and pinion or lever operated type have vertical and horizontal adjustments for centering to the die.

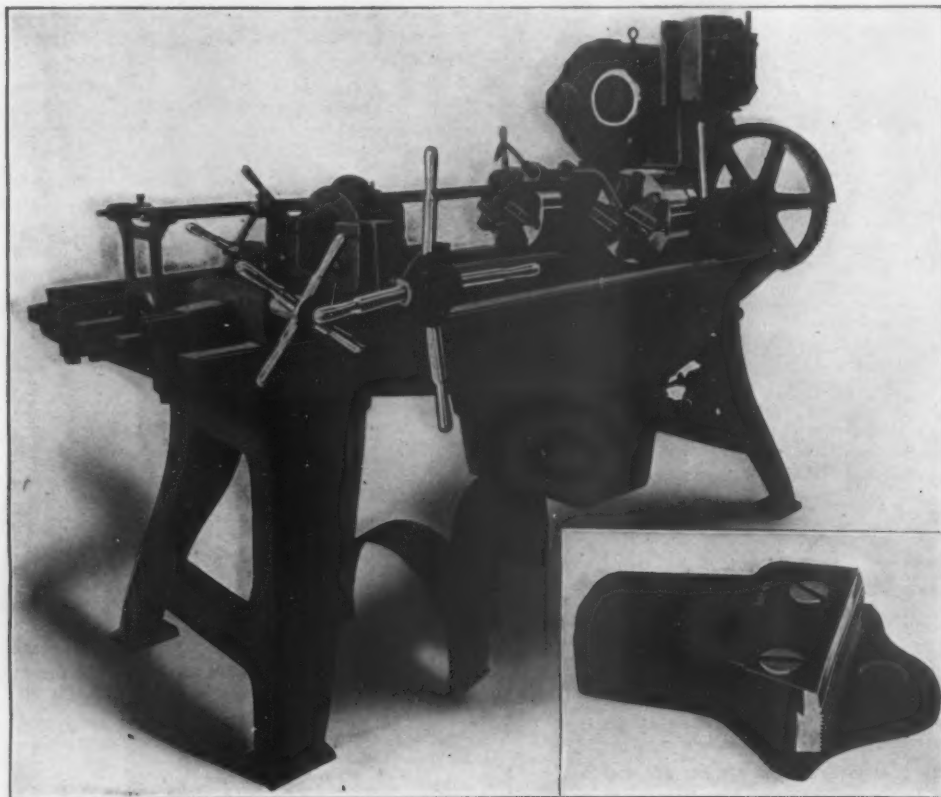


Fig. 1.—A $1\frac{1}{2}$ -In. Staybolt Cutter Equipped with an Adjustable Speed Motor, Built by the Landis Machine Company, Waynesboro, Pa.

chines are the employment of steel guides instead of cast iron ones, a wide speed range and the provision of a large space for taking care of the chips. Fig. 1 illustrates the company's $1\frac{1}{2}$ -in. double head staybolt cutter equipped with an adjustable speed motor, while Figs. 2 and 3 show two of the smaller sizes, namely the $\frac{1}{2}$ -in. double head bolt cutting machine and the 1-in. double head bolt threading machine.

The staybolt cutter shown in Fig. 1 has a motor which has a speed variation of 4 to 1 mounted on top of the machine, the motor being directly connected to it. The wide range of speed adjustment provided enables either carbon or high speed steel dies to be used as the circumstances of each particular piece of work may require and any speed between the maximum and the minimum can be secured at any time without stopping the machine. One or both heads can be furnished with a lead screw attachment as may be desired and it is possible to cut any pitch and diameter

All of these machines are equipped with the maker's standard type of die which is held in various ways to meet the requirements of different classes of work. In the lower portion of Fig. 1 one of the chasers is shown in a die held by a clamp which comes flush with the front edge of the die. This is the type of holder used for regular bolt work or for cutting close to shoulders, as the arrangement enables cutting close to shoulders or heads of bolts to be done at any time. The dies used have either very short throats or none at all and as when they are sharpened, no grinding is done in the throat of the die this remains permanent and is a very great advantage on many classes of work. These machines can also be furnished with a holder having the mill type of clamp which was illustrated in *The Iron Age*, September 1, 1910. This clamp is used as it affords a rigid support to the die and is of a special advantage when threading pipe as it comes over the chaser in such a way as to protect the latter when

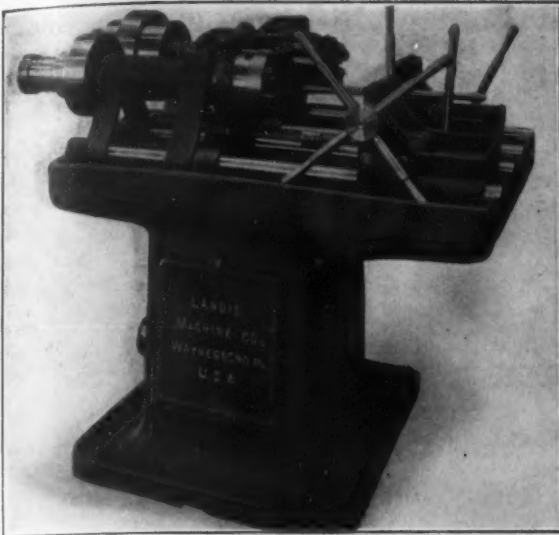


Fig. 2.—The 1/2-In. Double Head Bolt Cutter.

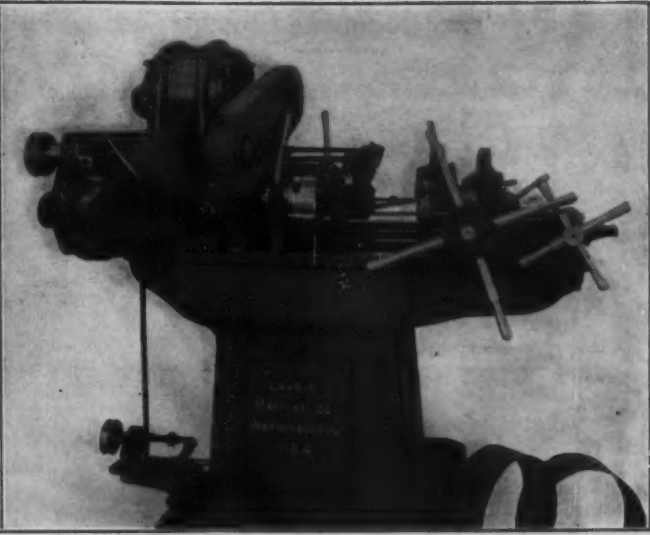


Fig. 3.—The 1-In. Double Head Bolt Threader.

Two Other New Landis Machines.

the pipe splits or catches in the chaser. Both of these types of holders are made entirely of steel as well as the die heads on all these machines. Either constant or adjustable speed motors can be used for driving these machines as may be desired.

Industrial Lighting.—Night production costs 20 per cent. more than production in the daytime in an Eastern silk mill, according to F. B. Allen, in a paper devoted largely to the Cooper-Hewitt mercury vapor lamp. He regards the condition as largely due to inferior illumination. He adds that a mercury vapor lamp can be run for 5 hr. at a power expenditure of 1 kilowatt-hour, and that if the factory produces power at the cost of 1 cent per kilowatt-hour, 5 hr. of use of a mercury vapor lamp, therefore, costs but 1 cent. On an average in industrial lighting one mercury vapor lamp is provided, he says, for at least two men. At 40 cents per hour for employment, the expense of \$2 for employing the two men for 5 hr. is compared with the lighting service for the same time at a cost of 1 cent. With improved illumination, he asserts that it is not difficult to imagine that 20 machines will do the work that 25 have done heretofore. The value of the investment has been increased 20 per cent. or probably ten times the value of the lighting unit to produce the result.

The Pittsburgh-Buffalo Company, Pittsburgh, Pa., has recently repaired some of its coke ovens at Marianna, Pa., and is again operating all ovens there, aggregating 150 in all.

The annual report of J. G. White & Co., Ltd., engineers, London, Eng., formed some years ago to take over the foreign business of J. G. White & Co., Inc., of New York, shows net profits for the year of £91,466, as against £64,801 the previous year. The directors recommend that £15,000 be allocated to writing off the balance of purchase of business account and a further £15,000 be placed to the credit of a new reserve account for the equalization of future dividends. This total sum of £30,000 having been set aside, the directors recommend a dividend of 7 per cent. for the half-year on both the preferred and ordinary shares, making, with the interim dividend of 5 per cent. paid January 1, a total distribution of 12 per cent. for the year. They further recommend an extra dividend of 10s. per share, or 50 per cent. on the ordinary shares, making a total of 62 per cent. for the year, leaving the balance of £19,812 to be carried forward to next year's accounts. This venture by an engineering firm of American origin has been a phenomenal success.

The McKeesport Tin Plate Company, McKeesport, Pa., resumed operations in full July 17. The plant, which is at Port Vue, near McKeesport, had been shut down for two weeks, during which necessary repairs were made and some needed improvements were finished.

The McClintic-Marshall Construction Company, Pittsburgh, was last week awarded another Panama Canal contract, calling for spill way gates, caissons, foot bridges, numerous valves, bulk head gates, screens, etc., amounting to \$339,190.

Percentage of Production of the United States Steel Corporation for 1910

The following table, showing the percentage of total production of the United States attained by the United States Steel Corporation in 1910, is taken from the Annual Statistical Report of the American Iron and Steel Association:

| | By U. S. Steel Corporation. | By independent companies. | Total shipments and production. | Percentage U. S. Steel Corporation. | Its percentage in 1909. |
|---|-----------------------------|---------------------------|---------------------------------|-------------------------------------|-------------------------|
| Iron ore shipments from Lake Superior and the iron ore production in 1910; also coke production in the same year. | 22,185,972 | 21,256,425 | 43,442,397 | 51.0 | 51.4 |
| Shipments of iron ore from the Lake Superior region in 1910, gross tons | 25,245,816 | | | | 45.7 |
| Total production of iron ore in 1910, gross tons | 13,649,578 | 28,059,232 | 41,708,810 | 32.7 | 34.6 |
| Production of coke in 1910, net tons | | | | | |
| Iron and steel actually produced in the calendar year 1910. Gross tons. | | | | | |
| Spiegeleisen and ferromanganese | 173,636 | 50,795 | 224,431 | 77.4 | 72.5 |
| Bessemer, basic, low-phosphorus, foundry, forge, ferro-silicon, etc. | 11,657,762 | 15,421,374 | 27,079,136 | 43.0 | 44.8 |
| Total pig iron, including spiegeleisen, ferromanganese, ferro-silicon, etc. | 11,831,398 | 15,472,169 | 27,303,567 | 43.3 | 45. |
| Bessemer, open-hearth, crucible, electric, and all other steel ingots and castings | 14,179,369 | 11,915,550 | 26,094,919 | 54.3 | 55.8 |
| Bessemer steel rails | 1,134,381 | 750,061 | 1,884,442 | 60.2 | 57.3 |
| Open-hearth steel rails | 1,004,565 | 746,794 | 1,751,359 | 57.4 | 52.5 |
| Structural shapes | 1,163,300 | 1,103,590 | 2,266,890 | 51.3 | 47.1 |
| Plates and sheets, including black plates for tinning | 2,380,106 | 2,575,378 | 4,955,484 | 48.0 | 49.8 |
| Wire rods | 1,508,294 | 733,536 | 2,241,830 | 67.3 | 69.7 |
| Bars, skelp, nail plate, iron rails, and other finished rolled products | 3,203,279 | 5,317,993 | 8,521,274 | 37.6 | 39.4 |
| Total finished rolled, including rolled forging blooms and rolled forging billets | 10,393,925 | 11,227,354 | 21,621,279 | 48.1 | 48.9 |
| Wire nails | 7,041,692 | 5,663,210 | 12,704,902 | 55.4 | 60.7 |
| Tinplates and terne plates | 440,694 | 282,076 | 722,770 | 61.0 | 61.9 |

*The total production of iron ore by the United States in 1910 had not been ascertained by the Geological Survey in July, 1911.

The Columbia Chuck

A new type of self-centering chuck which is known as the Columbia high speed universal chuck has been brought

body is such that the jaws are almost entirely covered by it. This minimum protrusion reduces the possibility of accident to the operator from the hands or the clothing catching in the jaws.

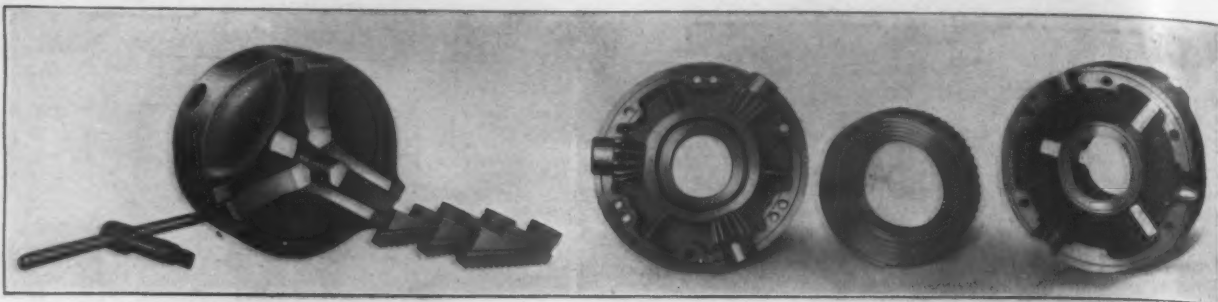


Fig. 1.—Assembled and Unassembled Views of the Columbia Chuck, Made by Schuchardt & Schutte, New York City.

out by Schuchardt & Schutte, West Street Building, New York City. This chuck is especially adapted for heavy work with high speed steel and its construction embodies features of strength and gripping power to answer this special purpose. Fig. 1 is a view of the chuck assembled and unassembled, while Fig. 2 shows one of the 8-in. chucks mounted in a lathe and gripping a piece of 0.20 per cent. carbon steel in which a cut 7/16 in. deep is being taken.

As will be noticed from Fig. 1, the chuck is constructed along lines that are radically different from those

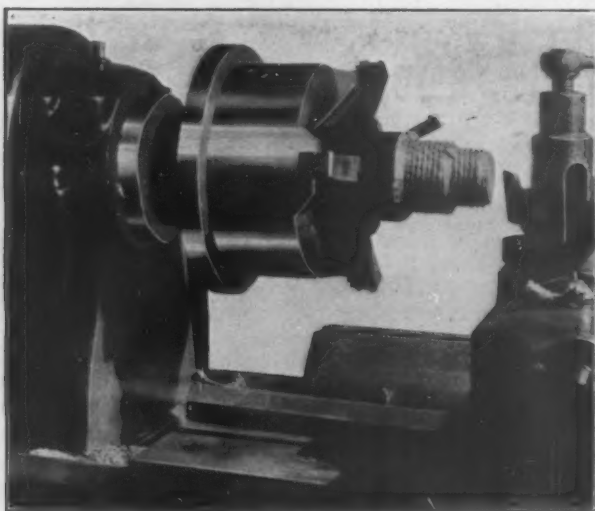


Fig. 2.—The Chuck in Use.

of the old design of scroll chuck. The essential part of the chuck is the hardened steel ring which is shown between the other two parts of the body. The spiral thread which is cut in this ring on its sloping inner surface has a considerably finer pitch than that of the ordinary scroll chuck, it is explained, an arrangement calculated to increase the area of the wearing surface and the gripping power. This ring is first hardened and is subsequently ground to secure a perfectly true running chuck. By a sloping inner surface of the body against which the jaws bear, greater resistance to any tendency to spring upward and out of the body when the jaws are tightened is secured, as the jaws have more teeth in contact with the body than is the case with the ordinary scroll chuck and the pressure is directly against solid metal.

Ten different sizes of chucks are made and the principal dimensions and specifications are given in the accompanying table:

| No. of chuck..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------------------------------------|--------|--------|--------|--------|---------|---------|---------|----------|----------|----------|
| Gripping capacity, in..... | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 14 | 16 |
| Outside diameter, in..... | 4 3/4 | 5 5/16 | 6 1/2 | 7 1/2 | 8 7/16 | 9 7/16 | 10 5/8 | 12 13/16 | 14 15/16 | 16 15/16 |
| Diameter of hole, in..... | 1 1/16 | 1 1/2 | 1 7/8 | 2 1/4 | 2 3/4 | 3 | 3 9/16 | 4 1/4 | 5 1/4 | 6 1/4 |
| Depth of body, in..... | 2 3/4 | 3 5/32 | 3 3/4 | 3 3/4 | 3 15/16 | 3 15/16 | 4 11/32 | 4 9/16 | 5 3/32 | 5 5/16 |
| Net weight, 1 set of jaws, lb..... | 7 1/2 | 13 | 20 1/2 | 29 1/2 | 42 1/4 | 46 1/4 | 61 1/4 | 108 | 159 1/4 | 200 1/2 |
| Net weight, 2 sets of jaws, lb..... | 8 1/4 | 13 3/4 | 23 1/4 | 32 1/2 | 45 1/4 | 52 | 69 | 119 | 174 1/4 | 218 |

The three jaws with which the chuck is equipped are of either the step or the cut-off type, and sets of one or both kinds can be supplied as desired. The design of the

The World's Production of Pig Iron

James Watson & Co., of Glasgow, Middlesborough, Liverpool and Swansea, have issued their compilation of statistics of the world's production of pig iron. The figures cover the year 1910, the years 1908 and 1909 being included for purposes of comparison. They are as follows:

| | 1908. Tons. | 1909. Tons. | 1910. Tons. |
|-----------------------|----------------|----------------|----------------|
| United States..... | 15,936,018 | 25,795,471 | 27,298,545 |
| Germany..... | 11,813,511 | 12,917,653 | 14,793,325 |
| Great Britain..... | 9,289,840 | 9,664,287 | 10,216,745 |
| France..... | 3,344,145 | 3,544,638 | 4,032,459 |
| Russia..... | 2,751,000 | 2,817,000* | 2,956,000* |
| Austria & Hungary.... | 1,952,750 | 1,947,300 | 1,990,684 |
| Belgium..... | 1,182,311 | 1,632,350 | 1,803,500 |
| Sweden..... | 563,300 | 443,000 | 604,300 |
| Spain..... | 430,000 | 420,000 | 425,000 |
| Canada..... | 563,672 | 677,090 | 740,210 |
| Italy..... | 80,000 | 147,000 | 343,600 |
| Japan..... | 147,217 | 161,020* | 162,000* |
| India..... | 38,000 | 39,350 | 35,933 |
| China..... | 66,409 | 74,000 | 120,000 |
| Mexico..... | 66,409 | 58,859 | 45,000 |
| New South Wales..... | ..... | 26,762 | 40,487 |
| Totals..... | 48,174,788 | 60,365,780 | 65,607,788 |

* Estimated.

The total for 1910 shows an increase of 5,242,008 tons as compared with 1909, and an increase of 17,433,000 tons compared with 1908.

Railroad Equipment Orders.—The following orders have been placed for railroad locomotives and cars: Illinois Central, 2000 box cars; Wabash, 1000 box cars and 200 hopper cars; Atlantic Coast Line, 900 box cars, 100 steel underframe flat cars and 8 all steel postal cars; Missouri Pacific, 2000 all steel gondola, 500 steel flat, 1000 steel underframe box, 400 steel underframe automobile, 18 baggage and 17 steel postal cars; Manufacturers' Railway, St. Louis, preparing specifications for 100 all steel 50 ton coal cars and 50 steel furniture cars; Canadian Northern, 20 consolidation locomotives; Baltimore & Ohio, 10 Mallet locomotives; Cold Blast Transportation Company, Chicago, in the market for 100 tank cars; Chicago, Memphis & Gulf, 100 freight cars; Erie Railroad, 3675 cars and 60 locomotives, orders for which will be placed after August 1; St. Louis & San Francisco, 62 miscellaneous cars; Wabash, 1000 steel underframe box cars and 200 all steel hopper cars.

The issue of the Gazette Times, Pittsburgh, of July 26, celebrates the 125th anniversary of the establishment of that paper. An illustrated supplement gives many interesting details of the greatness which Pittsburgh has attained in various branches of industry and commerce. The leading article in this supplement, which is written

by B. E. V. Luty, treats of the "Rise and Growth of Iron and Steel, Pittsburgh's Big Industry." It is a most interesting historical presentation of this subject.

Baltimore Industrial Notes

The Municipal Factory Site Commission, acting under municipal ordinance, in the development of factory sites in Baltimore, Md., has been formally organized with the following members: J. Barry Mahool, chairman, representing the Chamber of Commerce; Henry F. Baker, Merchants' & Manufacturers' Association; Jacob W. Hook, Old Town Merchants' & Manufacturers' Association; George W. Rollman, Federation of Labor; William Merriken, Real Estate Exchange; Herbert J. West, Builders' Exchange; Samuel O. Malin, Northern Central Railway; Austin Gallagher, Western Maryland Railroad; Francis Lee Stuart, Baltimore & Ohio Railroad, and A. S. Goldsborough as secretary. The commission is now in active operation and has plans under way for the acquiring of desirable sites for several industries. A plot of about 17 acres of the old quarantine station will be sold to J. S. Armstrong, on which a large fertilizer plant is to be built. Factory sites are also being sought by a Camden, N. J., interest.

The State Roads Commission has, it is stated, awarded the contract for the construction of a bridge over the Nanticoke River at Sharps town, Md., connecting Wicomico and Dorchester counties, to the Roanoke Bridge Company, Roanoke, Va., at a bid of something over \$25,000.

Parker Thomas & Rice, architects, Baltimore, have completed plans for two additional hospital buildings for the Springfield State Hospital at Sykesville, Md. Each will be two stories, of brick and stone, with concrete foundations. Electric lighting and steam heating will be installed. A number of local contractors are estimating.

Lauer & Harper, Baltimore, have been awarded the contract for the structural steel, fabrication and erection of the new building for the Industrial Building Company, aggregating 1170 tons. General business conditions with this firm have not been particularly active, especially during the early part of July, but were more favorable during the closing weeks. Considerable inquiry for buildings of moderate size are being figured on both in this vicinity and in the South.

The Chesapeake Iron Works reports a substantial gain in the volume of business taken. July orders show an increase of 50 per cent. over those for the previous month, and the company's plant is more fully engaged. The bulk of the orders have been small, but the total business continues to increase gradually. Among recent contracts is one for a steel roof for the Government Printing Office, Washington, D. C. An extension to the generator house of the Consolidated Gas Electric Light & Power Company, of this city, will be fabricated and erected, and several good contracts have been booked for buildings to be erected at various Southern points. Inquiries are reported as more numerous, and the business outlook is believed to be improving.

The Monarch Engineering & Mfg. Company notes a fair business in heating and melting furnaces, particularly the former, for use in connection with the heat treatment of steel, case hardening and tempering work. Low temperature melting furnaces are being furnished to railroads, and several furnaces of the pre-combustion cross-blast low air-pressure melting and heating furnaces have recently been shipped to various customers. Considerable business of a general nature is in sight and being figured on.

A number of plans are reported to be under consideration for the extension of the electric car service in the territory surrounding this city. While these are largely tentative plans at this time, their ultimate development is generally believed likely. Some of these plans include the extension of certain lines as far as Havre de Grace, Md. The improvement of state roads has opened up the possibilities of greater suburban and interurban trolley-line traffic, and extensions in several directions are quite probable.

The matter of additional water supply has been under discussion by city officials for some time, and it is stated that an agreement has practically been reached which will involve the construction of a dam on Lock Raven Run, at an estimated cost of \$1,500,000, which will have a storage capacity of 3,000,000,000 gal. Funds from an authorized loan of \$5,000,000 will take care of this project and also permit the erection of a filtration plant at Lake Montebello.

The Industrial Building Company, having under construction what is generally known as the Beehive Mfg. Building on Preston street, the contracts for the erection of which have already been announced, has filed incorporation papers with the Superior Court. The capital stock of the company has been fixed at \$300,000, and its business will be to acquire lands and erect manufacturing and other buildings. The incorporators named are Thomas S. Anderson, W. H. Cassell, William J. Chapman, Charles M. Cohn, A. B. Evans, Isaac O. Harper, Alexander Harvey, H. B. Lohmeyer and James E. Kane.

Contracts were awarded during the month by the Board of Awards for the first section of the three-tube storm water drain, to be laid in the bed of Jones Falls, to M. M. Elkan, Macon, Ga. This section extends from tidewater, about 200 ft. south of Baltimore street, to Center street, and marks the beginning of the closing of Jones Falls from the Union Station of the Pennsylvania Railroad to the river front. A streetway will be constructed over the drains.

Dietrich Brothers have taken a number of small contracts for fabricated iron and steel work, and are estimating on considerable work, both in this vicinity and the South, on buildings involving each from 200 to 500 tons of material. No large contracts have recently been secured by the firm, which is quite busy, however, on work in hand, which includes the structural work for the Baltimore Bargain House and the addition to the Maryland Casualty Company's building, which is now going through its shops. A very good demand for plain structural shapes and for concrete bars is reported.

The plant of the Baltimore Gas Appliance & Mfg. Company, Hamburg and Bayard streets, is rapidly approaching completion. Nine buildings comprise the plant. Machinery and equipment is now being installed, practically all that will be required having already been purchased. It is expected that the new plant will be in full operation in October. Gas ranges, gas water heaters and other gas appliances will be manufactured.

Morrow Brothers, Inc., engineers, have, it is stated, been awarded the contract for the erection of a large warehouse and manufacturing building at 603 North Calvert street, for the Independent Casket Company. The same engineers have prepared preliminary plans for a new warehouse to be erected on Howard street, near Mulberry, for M. E. McCormick. A four-story L-shaped building is being considered. Final plans are not expected to be ready for estimate for at least a month.

The Baltimore & Virginia Railroad Company has made application to the Public Service Commission of Maryland for permission to begin the construction of a railroad line extending from Millersville, Md., to Drum Point, Md.

Among various projects being figured on by contractors and fabricators in this district are to be mentioned the new Y. M. C. A. Building, Charleston, S. C., a new station for the Southern Railway at Lynchburg, Va., the Confederate Home, Richmond, Va., and the Caswell Theatre, Norfolk, Va.

The Westinghouse Electric & Mfg. Company's Meeting.—The administration of the Westinghouse Electric & Mfg. Company won every contention at the adjourned meeting held at Pittsburgh, Pa., July 29. The directors elected were James S. Kuhn, Edwin M. Perr, Pittsburgh; Edwin F. Atkins, Boston; Charles F. Brooker, Ansonia, Conn. Harrison Nesbit, Pittsburgh, was elected director to fill an unexpired term. The resolutions by the Westinghouse party providing for the election of all directors annually and for cumulative voting were defeated.

David D. Lamond & Co., 702 Ferguson Building, Pittsburgh, consulting and contracting engineers for blast furnaces, and patentees of the Foote-Lamond firebrick stoves, has recently secured the sales agency in Pittsburgh and vicinity for the open and closed type feed water heaters, water purifiers, separators, and steam specialties made by E. G. T. Collis & Co., Chicago, Ill., whose business was established 32 years ago, and whose products are in use on important railroad systems, in large iron and steel plants, etc.

The Parkesburg Iron Company, manufacturer of genuine charcoal iron boiler tubes, has removed its New York office to 30 Church street, room 1023.

The International Railway General Foremen's Association

The annual meeting of the International Railway General Foremen's Association was held at the Hotel Sherman, Chicago, July 25 to 27. The papers and discussions before the meeting were largely along the lines suggested by topics prepared by F. C. Pickard, master mechanic of the Cincinnati, Hamilton & Dayton, under the general heading, "How Can Shop Foremen Best Promote Efficiency." Shop organization, methods of supervision, handling of material and shop kinks and methods were made the subjects of thorough discussion. A long list of practical questions had been prepared for this purpose.

The entertainment programme included a visit to the plant of Joseph T. Ryerson & Sons, where lunch was served and where the machine tool demonstrating room was thrown open. A number of machine and boiler shop tools were operated.

On Wednesday and Friday evenings the Marshall & Huchart Machinery Company entertained about 135 men at its store. A working demonstration was given of a number of machines on the floor. The representation of machine tool builders included S. H. Bullard, vice-president Bullard Machine Tool Company, with an operator for demonstrating a 42-in. vertical turret lathe; S. H. Reck, president Rockford Drilling Machine Company, with two operators running a 24-in. four-spindle gang drill on pump chamber work and a 20-in. drill on general manufacturing; William H. Schaefer, secretary Cincinnati Bickford Company, and operators showing a 36-in. new pattern radial drill and a 24-in. tapping drill on high-speed drilling; A. J. Baker and John Kliber of the Cincinnati Milling Machine Company, the former being an expert on the new design of milling cutters which were shown on both roughing and finishing work on vertical and horizontal millers; Mr. Grove of the Landis Machine Company who showed a 1½-in. bolt cutter; Mr. Kellar of Gould & Eberhardt, demonstrating a 44-in. electrically-driven shaper and a 12-in. gear generator; Emil Von Wick of the Von Wick Machine Company, Cincinnati; Mr. Thompson, secretary of the Gardner Machine Company, Beloit, Wis., with two assistants, showing a pattern-making machine and a double-disc grinder; Mr. Wood of the Lodge & Shipley Machine Tool Company, in charge of the patent head lathe display; Charles Meiers, sales engineer Cincinnati Planer Company, demonstrating a 36-in. planer having three heads and a two-speed countershaft; Mr. Pierson, secretary Acme Machine Tool Company, Cincinnati, showing a 2¼-in. screw machine fully equipped, and Morley Hitchcock, president Reliance Electric Machine Company, Cleveland, with Mr. Engle, Chicago manager, who presented a type of motor for machine-tool drive in which the armature may be moved laterally in and out of the field of the motor. A vaudeville entertainment followed the demonstration.

Among the features to which attention was called in the course of the above demonstrations were two of a general character that appeared with some prominence. The one had to do with the development of each feature of the modern machine tool up to the high duty efficiency limit of every other part of the tool. For example high-speed tool steels with their larger metal cutting possibilities required the designing of stiffer heads. Stiffer heads permitted increasing the number of simultaneous operations and thus reducing the ratio of the time of handling material to the time of actual machining. This increase in capacity brought about stronger and more freely lubricated drives, especially with regard to the speed change and driving gears. These gears are now largely made from alloy steels, particularly nickel chrome steel, and are immersed in oil from continuous feed systems. Emphasis was thus laid upon that design which provided throughout uniform possibilities for severe service. The improvement in the electrical control of tools having reciprocating motions likewise was a matter of interest. Geared drive motor control is now possible, as illustrated on a 44-in. shaper, permitting instantaneous stopping and starting at operating speed. It was likewise shown to be possible on a short stroke to run the speed of this machine up to 120 strokes per minute without exceeding apparently the operating efficiency of the tool.

The convention elected F. C. Pickard, Indianapolis, master mechanic Cincinnati, Hamilton & Dayton, president and re-elected L. H. Bryan, Two Harbors, Minn., general foreman Duluth & Iron Range, secretary-treasurer.

The Appalachian Exposition

The Appalachian region is one of the richest sections of the country in its deposits of minerals, both metallic and non-metallic. On the west, in the Cumberland Mountains, the coal deposits are flanked on both sides by fluxes necessary to the reduction of ores: on the east, in the valleys and extending through the Allegheny Mountains, as far as the Blue Ridge, are found enormous deposits of about all the varieties of iron ores that are necessary in iron and steel production.

At Knoxville, Tenn., the Appalachian Exposition is an annual event. Its first year (1910) was a decided success, when there were approximately 400,000 paid admissions. This year it promises to be greater in value and extent, as well as in attendance. It will open September 12.

A great feature of the exposition is found in its mineral and forestry display, though other departments are exceedingly important. The exhibit of minerals is under the control of a committee on minerals and forestry, composed of men who have a thorough knowledge of the resources of the Appalachian region.

In coal will be shown coking, steam, domestic, gas, splint, cannel and semi-anthracite, with their value at Knoxville or at other points. Steam coal is now delivered in Knoxville for \$1 to \$2 per ton, dependent upon size and heat value. It is required that these coals be shown, with analyses, tests, and other information desirable to manufacturers.

In iron ore will be exhibited hematite, magnetic, limonite, both red and brown ores, and buckwheat, which is sometimes called shot ore. Some of these ores are fossiliferous, with layers of 6 to 10 in. of fossiliferous shells. This latter ore is mined with steam shovels, and is 6 to 10 ft. in thickness, with hard ore underneath. The great valley between the Cumberland and the Appalachian mountains contains enormous deposits of limestone running 99 per cent. carbonate of lime, other with a large percentage of magnesia. Near Rockwood, Tenn., a shaft passes through a deposit of coal, then through limestone and next into iron ore, making it practicable to furnish the three necessary minerals for the production of pig iron through one mine outlet.

Other important local metals forming part of the exhibit will be copper, zinc, gold, manganese and such rare minerals as rutile, titanium, tungsten, cobalt, zirconium and molybdenum.

Non-metallic minerals will be represented by kaolin, ball clay, shale, fire clay, brick clays, cement rock, barytes, siliceous, tripoli, rotten stone, lithographic stone, salt, gypsum, talc, soap stone, saltpeter, alum, arsenic, copperas, limestone of many grades, fluorspar, calcite, silica, etc. The building stone display will of course be a fine one, as the marbles of Tennessee, Georgia and North Carolina are well known. In sand stones will be shown red, brown, blue, gray, dull and yellow in many shades. The fineness of the grain is such in some that they are used for the highest class of honing stones and ranging upward one-thirty-second of an inch in grain. Others are so soft that when quarried they yield to the tool with extreme ease, but after exposure for a short time are hardened to such a degree that it is almost impossible to cut them. Included in the display will be granite of many shades, colors and degrees of texture; slate for roofing or for ornamental and structural purposes, and onyx, of which large deposits are found near Knoxville, in a solid and compact mass, from which stones can be taken out in any size. Every opportunity for information will be furnished by the committee on minerals and forestry of the exposition.

The American Car & Foundry Company is stated to be now running its own risk against damage suits from its employees. According to officials of the company, it is expected that more than \$200,000 yearly will be saved. Last year the losses were nearly \$500,000, and the premiums paid the insurance companies for carrying the risk approximated \$700,000.

The Machinery Markets

A better volume of business, principally for miscellaneous machinery for replacement, is reported from a number of machinery selling centers. In the East the trade is bidding on an \$80,000 list which is to be purchased by the General Electric Company for the Pennsylvania General Electric Company at Erie, Pa., and the Ontario & Western Railroad is closing out on a large list for Middletown, N. Y. The automobile interests continue active purchasers, especially in the Detroit market, where the makers are buying tools to manufacture their 1912 models. The Ford Motor Company is buying heavily in that market for plant additions. In Cincinnati the automobile manufacturers are purchasing to replace obsolete machinery. The buying in Chicago is of a miscellaneous character, and principally in small lots. A moderate increase in inquiries is reported from Philadelphia, and the books of machinery houses there show that business improved during July. The Oregon lumber camps are contributing some good business to the machinery trade on the Pacific Coast. An increasing demand for mining and irrigating machinery has developed in Texas and in the South the call for quarrying machinery is commanding the attention of the trade.

New York

NEW YORK, August 2, 1911.

July was a better month than June with most of the large machinery houses in New York, although the business done was largely in small lots of tools. This month opens with some good prospects in sight. The General Electric Company has bids in for about \$80,000 worth of machinery to be delivered to the Pennsylvania General Electric Company at Erie, Pa. This is one of the largest lists of the year, and the business will be closed out within the next four weeks, according to assurances which have been given to some of the bidders. The New York, Ontario & Western Railroad placed a few orders during the week which about closes out the requirements called for in its large list of machinery which was sent out last February. This equipment is for the Middletown shops. Most of the machine tools were closed for several weeks ago and this week the contracts were placed for the blacksmith shop tools, including upsetting and forging machines, bulldozers and shears. There are indications that the Maryland Steel Company, Sparrows Point, Md., will soon be in the market for some heavy metal working machinery. This company is now planning for a good-sized addition to its plant which will be devoted to manufacturing purposes.

Makers of contractors' equipment, such as excavating machinery and hoisting engines, are looking for some good business from the constructors of the additions to the New York subway system. Ground was broken on Monday for an extension to the Lexington avenue route, and other contracts covering the extensive additions planned will be let as soon as possible. The Bradley Contracting Company has the Lexington avenue work under way and although it has a large amount of contractors' machinery more will be needed as the work progresses. It will be several months before makers of ventilating machinery and other equipment used in the subway system will benefit from the enterprise.

The Pennsylvania Equipment Company, West End Trust Building, Philadelphia, Pa., is in the market for a second hand mould board plow and several iron or steel turntables to accommodate locomotives 55 ft. long and 50 tons in weight.

The American Locomotive Company, 30 Church street, New York, has a contract to build two of the largest dredges ever made for delivery to the Cape Cod Construction Company, which is building the Cape Cod Canal. The dredges are to be made at the Rogers plant, in Paterson, N. J., and they will be erected at the site of the canal operations. The American Locomotive Company will probably require considerable manufacturing equipment to fit the Rogers plant for this class of work. Much of the equipment in the Rogers plant is obsolete, according to those who are familiar with the works, and inquiries made in the trade of late indicate that some buying is to be done shortly.

The Hartford Suspension Company, Jersey City, N. J., has acquired a tract of land, 200 x 200 ft., in the Marion section of the city and is planning the construction of an auxiliary plant there. The company expects to move into its new plant, now nearing completion at 145 Bay street, about September 15. The building is six stories, 86 x 100 ft., of reinforced concrete construction. The equipment now at 150 Bay street, its present quarters, will be moved and much additional machinery, all to be electrically driven, will have to be provided after the company has moved.

The Board of Education, Bayonne, N. J., is asking for bids on one 150-hp. boiler, with the necessary appurtenances, for school No. 3. W. J. Tomlin is secretary of the board.

The Buffalo Aluminum & Bronze Company has been

incorporated at Buffalo, N. Y., with a capital stock of \$25,000 to manufacture manganese ingots and aluminum brass and manganese castings. The company has taken over and will continue the business of the Lundhaven Brass Company at its plant, 41-45 Letchworth street. The officers of the new company are George W. Morris, president; E. G. Northrop, vice-president and general manager, and J. G. Keppell, secretary and treasurer.

The MacDonald & Sons Mfg. Company, Buffalo, has been incorporated with \$100,000 capital stock to manufacture machinery and tools, including patent wrenches, for which a factory will be established in Buffalo. The incorporators are Peter E., Colin C. and Alexander L. MacDonald, Toronto, Ont., and Henry J. Wood and William A. Hyde, Buffalo. The company has temporary office at 1411 Main street.

The Bicalky Fan Company, Buffalo, manufacturer of blowers and ventilators, is building an addition to its sheet metal works on Prospect avenue.

The Jewell Steel & Malleable Company, Buffalo, is building a one-story addition to its foundry at Hertel avenue and the New York Central Railroad.

Wannenwetch & Co., Buffalo, have been incorporated with a capital stock of \$100,000 to manufacture and deal in machinery. The directors are A. C. and E. A. Lembke and R. T. Liesenger, of Buffalo. The company will make a specialty of machinery for garbage and refuse destructor and fertilizer manufacturing plants and will act as mechanical and construction engineers for the erection of such plants. The offices of the company are at 563 William street.

The Beaver Company, Buffalo, manufacturer of Beaver board, has purchased seven acres that adjoins its present plant at Beaver and Military roads and the New York Central Railroad. Plans are being made for four new buildings, the first of which, 70 x 350 ft., of concrete and brick, will be commenced at once, the others to be erected later.

The International Fritchie Company, Warwassing, N. Y., has been incorporated with a capital stock of \$500,000 to manufacture motor vehicles. The incorporators are D. O'Connor, A. Sheard and H. A. Fluckiger, New York City.

The Security Reliner Company, Montgomery, N. Y., has been incorporated with \$50,000 capital stock to manufacture and deal in automobile supplies. The incorporators are E. I. Emerson, G. A. Emerson and O. T. Darbee, of Montgomery.

The Delaware & Hudson Railroad Company is having plans prepared for a roundhouse to be built at Binghamton, N. Y., at an estimated cost of \$40,000. George H. Burgess is chief engineer at Albany, N. Y.

Bids are being received by the city clerk, care of the Board of Public Works, Ithaca, N. Y., for two hydraulic turbines of 100 hp. each, with governors; three Gould's triplex pumps, with shafting clutches and transmission apparatus for connecting the turbines to pumps; one steel standpipe of 600,000 gal. capacity, and one steel standpipe of 150,000 gal. capacity, and two water meters, one for 24-in. and one for 20-in. pipe and a quantity of 8-in. and 6-in. cast-iron pipe.

The American Standard Auto Car Lift Company has been incorporated with \$25,000 capital stock at Elmira, N. Y., to manufacture a device for supporting wheels of automobiles, motorcycles, etc. The incorporators are R. Webster, M. E. Saefuse and P. C. Thompson, all of Elmira.

The Rochester Thread Company, Rochester, N. Y., has been incorporated with a capital stock of \$30,000, and will establish a factory for the manufacture of linen and cotton thread. The incorporators are T. Schelling, B. Schelling and M. L. Schelling, Rochester.

The Navoe Auto Company has been incorporated at Norwich, N. Y., with a capital stock of \$500,000 to manufacture patented articles. The incorporators are L. M. Foster, J. H. White and H. A. Clark, of Norwich.

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W. H. Sample & Son, Albany, N. Y., will build an addition to their manufacturing plant at Beaver and South Pearl streets.

The F. A. Austin Pattern Company, Syracuse, N. Y., has let the contract for a two-story addition to its factory on Wallace street.

Business Changes.

The National-Acme Mfg. Company, Cleveland, Ohio, has purchased the building occupied for the past four years by its Eastern headquarters, at 77 White street, New York, and has made extensive alterations. The structure is 25 x 100 ft. in size and six stories. The basement and first floor are used by the products department, and a full line of cap and set screws and screw machine products is kept there for serving the jobbing trade. The second floor is occupied by general offices, including a reception room and a large demonstrating room in which is shown a full line of National-Acme automatic machines. The third floor is used for storing screw machine products in cases ready for delivery to large consumers. The company will rent the upper lofts to other manufacturers.

The Prentiss Tool & Supply Company, one of the oldest houses in New York dealing in metal working machinery, which has been located at 115 Liberty street for the last 24 years, will move its offices August 14 to the twelfth floor of the Singer Building, 149 Broadway. The company will continue to use its present quarters for storage purposes for a time and later on will extend its present storage warehouse on Communipaw avenue, Jersey City, N. J.

New England

BOSTON, MASS., August 1, 1911.

The Boston dealers report that there has been some slight improvement in the demand for machine tools, but as yet the change is so slight as to be of little importance. The feeling exists, however, that everything is tending toward a sharp change in the autumn. Connections in the Middle West report that dealers there are very much encouraged on account of a noticeable increase in business.

The head of an important machinery house has the following to say of market conditions: "The early part of this month appeared to be decidedly dull, but during the last week or 10 days there has been quite a little change for the better, and we have succeeded in closing a number of quite fair deals, and have information in hand of several other medium-sized lots that will be wanted in the near future. We do not expect to see any very great improvement before September 1, but believe that there will be a gradual improvement in the next six weeks and there are signs pointing toward quite an increase a little later."

Vacation season in the mills is at its height, many large works being shut down as is their custom. In a few instances these periods have been shortened as compared with the original announcement of the manufacturers, because of unexpected improvement in business. The heavy rains which fell in parts of New England have relieved the water situation somewhat, but their area did not extend to the northern sections and consequently the rivers have not assumed a normal flow.

The textile machine manufacturers expect a very good business this fall, as compared with their experience during the last year. Some improvement is already noted, but business is very uneven, some departments being busy while others are not so prosperous. The general opinion is that both the cotton and woolen business will improve to such an extent that textile machinery will be in active demand.

The Artistic Bronze Company, South Norwalk, Conn., manufacturer of cabinet and builders' hardware, will be in the market for new equipment for its new factory, the erection of which has begun at Bridgeport, Conn. No list has been prepared. The company will require a number of small electric motors for use with two-phase double-alternating current from the city power plant, and some other new machines and tools which will be purchased by the company's engineer, H. B. Close, 326 Colorado avenue, Bridgeport, Conn., who has entire charge of building and equipping of the factory.

N. R. Davis & Sons, Assonet, Mass., manufacturers of guns, are making extensive alterations and additions to their factory, increased manufacturing facilities having become necessary owing to the growth of the business.

The Heald Machine Company, Worcester, Mass., is erecting an addition to its shops, 10 x 120 ft. The company has plans for extensive enlargements, and the new section will constitute a part of a very much larger addition which will be erected in the future. The company manufactures grinding machinery, the demand for which is growing so rapidly that the large increase in manufacturing capacity in the last two years has already proven inadequate.

The Hollander Bros. Company, Inc., Bridgeport, Conn., has been incorporated with a Connecticut charter to manufacture light metal stampings and wire-forming specialties. The incorporators are Henry Hollander and Samuel Hollander, Bridgeport, and Adolph Hollander, New York City. The factory is at Spruce street and Wordin avenue, Bridgeport.

Additions to general manufacturing plants in New England include the following: Interlaken Cotton Mills, Harris, R. I., addition to contain a large amount of new machinery; Fisk Rubber Company, Chicopee, Mass., additions to provide 35,000 sq. ft. of new floor space; Yale University, New Haven, Conn., a large central heating and lighting plant.

The important announcement is made that the Crown Mfg. Company, Pawtucket, R. I., a newly organized corporation for the manufacture of cotton goods, will erect an entirely new factory at a cost of \$100,000. It will consist of a main building, 138 x 340 ft., three and two stories, and a power house 40 x 56 ft., one story.

Philadelphia

PHILADELPHIA, Pa., August 2, 1911.

The volume of business coming to industrial plants in July showed an increase over that for the previous month. Builders of machinery and special equipment in this district report, with few exceptions, a slight increase in plant operations, and note a more general inquiry, which in quite a few cases has led up to business. The increased share of business has not been very freely distributed between machine tool builders. Users of such equipment still have a fair share of their plant idle and, until they become more fully engaged, buying of new tools is expected to drag. Machinery merchants report a moderate increase in inquiries, the major portion of which is still confined to single tool propositions. Occasionally a small list comes out, but no buying on an extensive scale is in immediate sight. Inactivity on the part of the railroads in this district is still to be noted. In the boiler and engine trade the demand continues somewhat irregular, with inquiries usually for small power equipment. Conditions in the second-hand machinery market are unchanged; buying is scattered, and covers, in a small way, the general range of metal and wood-working tools and machines. The foundry trade shows but little improvement.

The Howard W. Read Company, Third and Arch streets, is in the market for a 15-ton, 40-ft. span, three-motor traveling crane.

The Pennsylvania Equipment Company, West End Trust Building, is in the market for several hundred 30-ton hopper-bottom coal cars to pass M. C. B. inspection.

The Director of Safety, city of Philadelphia, announces the award of a contract to the Pusey & Jones Company, Wilmington, Del., for a new fire and police boat. The vessel will be 80 ft. long, 17 ft. beam and draw 6½ ft. of water.

The R. S. Newbold & Son Company, Norristown, Pa., is very well supplied with orders, both in its machine and boilermaking departments. Inquiries are coming in quite freely and the outlook for business during the next few months is reported as being very favorable.

The Elwood Ivins Tube Works, manufacturer of seamless steel tubing, reports orders as coming in quite satisfactorily. Considerable new machinery equipment is being built by this concern, which when completed and installed, will materially increase its productive rate.

J. G. Speidel, Reading, Pa., manufacturer of elevators, cranes, hoists, etc., considers the prospects for the remainder of the year as being very good. Quite a marked increase in business is to be noted during the past month. A large demand is reported for the Speidel direct-connected type of electric elevator machines.

The Hilles & Jones Company, Wilmington, Del., has recently secured contracts for equipment for the new shop of the Cincinnati Car Company, at Winton Place, Cincinnati, and another for the boiler-shop equipment

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for the new plant of the New York Central Iron Works at Hagerstown, Md. This latter job includes three vertical and horizontal punching machines, one set of 14-ft. plate bending rolls, one set of 12-ft. flange clamps and a 60-in. throat stake riveter, all being motor driven. The company is operating at about 75 per cent. of normal capacity, and while business during July has not been particularly heavy there has been a fairly satisfactory amount of orders for single tools.

The Ferracute Machine Company, Bridgeton, N. J., manufacturer of presses for cutting and forming sheet and bar metals, reports a steady improvement during the past six months, the orders booked each month since December, 1910, being in excess of the previous month. The company is running full time and conditions are practically normal. Orders are widely distributed; the foreign business, which was good during the depression, is still good, the increase, however, being particularly noticeable in the home trade. New presses are being added to the company's already large list from time to time and improvements made in older styles as occasion demands.

Baltimore

BALTIMORE, Md., August 1, 1911.

Improved business conditions reported pretty generally by machinery manufacturers, merchants and industrial concerns during June have been supplemented by reports of further gains in many directions in the past month. The rate of increase is small, but the steady gain is very encouraging to the trade, which looks forward to more active business conditions in the near future. In the majority of instances plant operations show an improvement, although in but few cases have they reached normal proportions. Manufacturers of machinery note a better run of orders, largely, however, for special equipment; inquiry has also improved, and the outlook is more encouraging. The bulk of the demand has been confined to metal-working tools. A very fair business in contractors' tools is reported, while the demand for small tools and shop supplies is, as a rule, reported as being somewhat better. Business in the boiler and engine lines has been rather spotty, although some fair contracts are being figured on and more business is in sight.

Several good-sized contracts for building and bridge work have been given out in the South, and iron and steel fabricators are still figuring on some fairly large work. Few of the large projects have, however, been awarded local concerns. Nevertheless, fabricators in several instances report sharp increases in the volume of business booked during the month. In the majority of cases the business has been made up of numerous small orders, although one for over 1000 tons, for the Beehive Building, was taken by a local concern. Railroad buying still continues light. The Baltimore & Ohio has placed orders for motive power and is inquiring for rolling stock; but additions to shop equipment, particularly in the way of machine tools, are very light. Some extensions to railroad lines are planned and trolley line extensions are contemplated. Little new municipal work of interest to the trade comes out. Further contracts in connection with the water supply and sewage disposal work are, however, contemplated. Contracting engineers are figuring on a fair amount of heating and ventilating work. The general demand for castings is still irregular and foundries are not very fully engaged.

Sealed proposals will be received by the Board of Awards, city of Baltimore, on August 9, for the installing of electric generators and a switchboard for the municipal sewage pumping station. Plans may be obtained at the office of the Sewerage Commission, 944 American Building.

Plans are under way for the establishment of another fertilizer plant in the Curtis Bay district. An option has been taken on 40 acres of land and architects are at work on preliminary plans, which will provide for a large and most modern plant. Southern capital, it is said, is interested in the project.

The Aumen Machinery & Supply Company reports business for July as being a shade better than in June. While orders have been largely confined to machine tools for metal-working purposes, some fair business in wood-working tools is in sight. The bulk of the trade in machinery lines has been confined to single tools, although a contract covering a list of eight tools was received from a Washington, D. C., customer. Machine shop supplies and small tools have been in

fairly good demand. Inquiry, while still confined to single tool propositions, has been more promising.

Wallace Stebbins & Sons have recently booked an order for a 200-hp. Fitzgibbons boiler and for the pipe work in connection with a heating installation for the National Park Seminary, Washington, D. C. The engine and boiler trade is reported to have been spotty during July, although estimates are now being made on a number of moderate capacity installations. The supply trade has been fairly active. The various departments of this concern's plant have continued fairly active.

J. D. Adt has recently booked considerable business in special machinery for export, included among which was tobacco-working machinery for export to Mexico, Manila, P. I., and to England. Orders have also been taken for additional elevating machinery, including a 2500-lb. electric elevator for the packing plant of Charles G. Kriel. All departments of the Adt plant are being operated at full capacity. July business in small tools and supplies has also shown an appreciable gain over the preceding month.

The T. C. Bashor Company has had a rather quiet month, as far as new business is concerned. Orders have been plentiful, but individually small and will not aggregate as large a total as those for the preceding month. Both boiler and tank work are reported less active. Several small orders for engines and compressors have, however, been booked. This company is about finishing up extensive installations for which it had contracts with the Simpson-Doeller Company, and the Crown Cork & Seal Company in connection with the new plant for the former and Highlandtown additions of the latter.

Louis N. Rancke, who, for a number of years was general manager of the Baltimore Retort & Fire Brick Company, and recently connected with the Gas Engineering Department of the Laclede-Christy Clay Products Company, St. Louis, Mo., has been appointed general manager of the Vulcan Fire Brick Company, Knickerbocker Building, this city. The plant is located at Wilmot, Va., and plans are under consideration for considerable improvements with a view of increasing the productive capacity.

The Middleton & Mead Gas Engine Company is the style of a new company which has commenced business at 11 East Lee street, Baltimore, to manufacture gas engines. The officers of the company are A. K. Middleton, president; G. B. Middleton, treasurer; James K. Q. Mead, secretary, all of whom were for many years connected with the White-Middleton Company.

The Patterson-Parsons Electric & Elevator Repair Company is a new concern with offices at 318 South Sharp street, Baltimore. Charles A. Patterson, formerly with Guy K. Mitchell, is at the head of the company.

Cincinnati

CINCINNATI, OHIO, August 1, 1911.

Machine tool orders from the automobile trade are confined almost entirely to replacements, and consequently are not coming in in any great volume. The railroads also seem to have adopted a stricter retrenchment policy, although when the crops begin to move they will doubtless be compelled to make some heavy purchases of shop tools and supplies.

As mentioned in *The Iron Age* about a year ago, a number of machine tool manufacturers adopted the policy of refusing to ship consignment stocks to agents. This plan is now in force with practically every tool builder in this section, and as a consequence warehouse stocks are much heavier than formerly; however, due to the excellent export demand and a curtailment in production, they are increasing very slowly.

The foundries making a specialty of machine tool castings are operating at about 50 per cent. of capacity, but the stove makers are faring better. Small electrical machinery is still in good demand, and power plant equipment is also holding up well.

The Cincinnati Foundrymen's Club will hold an outing at Elkwood Park, August 3. The Dean Mfg. Company, Newport, Ky., has placed at the club's disposal one of its large power boats on which a trip will be made to the newly completed Fernbank Dam. William Goodman, manager of the Laidlaw-Dunn-Gordon Company, and Paul Gosiger, a local foundryman, have charge of the entertainment features.

In spite of rather inclement weather the regular annual outing for employees, given by the Cincinnati Branch, National Metal Trades Association, July 29,

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was very largely attended. The different shop teams entered into the athletic contests with more than ordinary enthusiasm. The programme was arranged by Secretary J. M. Manley.

The Union Central Life Insurance Company has selected Cass & Gilbert, of New York, and Garber & Woodward, Cincinnati, as architects to draw up plans for a proposed 20-story office building that will be erected on the old Chamber of Commerce site. Building operations may commence before the end of the present year.

The structural work of the new jobbing mill for the Portsmouth Steel Company, Portsmouth, Ohio, is practically finished, and work on foundations for the machinery will be commenced within the next two weeks.

The Ohio Top Company, Cincinnati, manufacturer of automobile tops and other specialties, will soon move from its present quarters to a three-story brick building, 911-913 Broadway, now being remodeled. Some extra equipment will be needed.

The Heilman Automobile Company, Cincinnati, was recently incorporated with \$15,000 capital stock, and is erecting a modern fireproof garage and repair shop at Northside. The mechanical equipment, consisting of a lathe, drill press, motor, etc., has not yet been purchased. John C. Heilman is manager of the new company and M. W. Jennings secretary and treasurer.

The Hamilton Brewing Company is a new incorporation at Hamilton, Ohio, with \$100,000 capital stock, and it is reported that work on a brewery and ice factory will be commenced at an early date. Max Heman and Louis F. Morner are named among the incorporators.

H. Harig & Co., Cincinnati building contractors, have been awarded contract for an addition to the plant of the Globe-Wernicke Company, in Norwood. The building will be of concrete construction, 75 x 365 ft., seven stories, and will be used for the manufacture of office furniture.

The Kaps-Brehm Company, Cincinnati, has been awarded contract for the superstructure of the proposed Gilbert avenue viaduct. The amount of the contract is nearly \$150,000, and considerable structural material will be required in the work.

Some power plant equipment will be required for the new combination power and laundry building for the Good Samaritan Hospital, Cincinnati. Architect G. W. Drach drew up plans for the building, which will be 70 x 100 ft., two stories.

The Fosdick Machine Tool Company, Cincinnati, has decided to enlarge its plant at Northside, but no building plans have as yet been made up. The company reports an excellent export business, with the domestic demand only fair.

Bids have been closed for a four-story addition to the lamp factory of the Corcoran Brothers Company, Cincinnati, previously mentioned.

The Ironton Punch & Shear Company, Ironton, Ohio, has prepared plans for the erection of a modern steel building at Hecla and Aetna streets. Contract has been let to the Riverside Bridge Company, and work will be commenced at an early date. The Ironton Company recently purchased the equipment of the Cincinnati Punch & Shear Company, at a receiver's sale, and will make a specialty of punching and shearing machinery of all kinds.

The South

LOUISVILLE, Ky., August 1, 1911.

The South is preparing to market one of the largest cotton crops in the history of the section. The tremendous wealth represented by the crop is expected to result in stimulation in every line of business, and machinery manufacturers and dealers are arranging to share in it.

The demand for equipment, while not heavy, is good, and prospects are excellent. A somewhat better call for machine tools has been noted, this item being usually draggy in the local market. Quarry machinery is in good demand.

The Dow Wire & Iron Works, Louisville, has purchased an air-compressing outfit from the Ingersoll-Rand Company through the Brandeis Machinery & Supply Company. It will be used in the foundry and structural iron departments.

The Louisville Lead & Color Company has filed plans for an additional building. It will install some paint mills and other special machines, but will require no additional power equipment.

The Omaha Packing Company is erecting a two-

story brick addition at its Louisville branch. A 10-ton refrigerating plant will be installed, together with another 30-hp. boiler. The purchases will probably be made through the Chicago office.

The Art Brass & Plating Works, which was recently incorporated for the purpose of taking over the business of the Apex Mfg. Company, has elected the following officers: Otto Seelbach, president; Carl Rindt, vice-president, and Louis Rindt, secretary and treasurer. The company will purchase a monitor immediately and will add some additional equipment later on. It expects to develop the manufacture of plumbers' supplies particularly.

The building inspector of Louisville has ordered the owners of 51 buildings, including factories and apartment houses, to equip them with fire-escapes. This is expected to make business for the structural iron manufacturers.

An official statement from the general offices of the Louisville & Nashville Railroad Company denies a press report that the company has in contemplation the removal of its shops from Louisville to Madison, Tenn., near Nashville.

The Brinly-Hardy Company, Louisville, has recently made a number of changes in its plow manufacturing plant, looking to the enlargement of its department for making steel beam plows and cutting down the space devoted heretofore for the manufacture of wooden beams. Robert R. Freer, business economist of Cincinnati, Ohio, is installing, for the company, a series of factory organization, including scientific management and cost accounting.

Alvis Combs and Henry Baker, Hazard, Ky., are planning the establishment of a canning plant.

The Livermore Chair Company, Livermore, Ky., has been incorporated with \$20,000 capital stock and is now purchasing equipment for the manufacture of chairs. K. J. Myers is president and W. E. Render, secretary and treasurer of the company.

The Winchester Lumber & Mfg. Company, Winchester, Ky., is building an addition to its sawmill and planing mill. The company manufactures interior finish principally.

The garbage reduction plant of Covington, Ky., was destroyed by fire July 26, the loss being \$20,000. It has been announced that the plant will be rebuilt in the immediate future.

H. S. Mitchell, Cadiz, Ky., is erecting a building and will install machinery for the operation of a modern steam laundry.

A. P. White & Co., Cadiz, Ky., have begun the erection of a large flour mill. Power will be secured by the erection of a dam and the installation of a hydro-electric power plant. The buildings to be used, as well as the dam, will be of reinforced concrete.

The Home Milling Company, Greenville, Ky., is installing machinery in a flour mill with a capacity of 75 bbls. a day. George E. Johnson is general manager.

C. P. Perin, New York, has organized the Kentenia Mining Company, which has leased the coal lands of the Kentenia Corporation in southeastern Kentucky. Charles H. Davis, New York, is president of the latter company, which has a capital stock of \$10,000,000. Development work, which will require the purchase of a large amount of machinery, will begin in the near future.

The Fairbanks-Morse Company is installing two engines and two dynamos in the State Penitentiary at Eddyville. The engines have capacities of 125 and 225 hp., respectively.

An ice factory is to be established at Perryville, Ky., and a company for the purpose has been organized. C. E. Powell, W. V. Martin and W. J. De Baum are among those interested.

James P. Goodrich, Winchester, Ind., has purchased the electric-light plant at Mitchell, Ind., one of the conditions of the sale being that he install water-works system. Work in this direction is to begin at once.

The city of Anchorage, Ky., is contemplating the laying of water mains from Lakeland, Ky., to that point and the equipment of a pumping station. Address Eugene Straus.

Greeneville, Tenn., which was recently authorized to make a bond issue for improvement purposes, has in contemplation the erection of a hydro-electric power plant on the Molachucky River, five miles distant. Water is to be pumped into the town from a large spring a short distance away. Surveys are now being made.

The Chattanooga Iron & Wire Works, Chattanooga, Tenn., has been reorganized and dismissed from litigation in which it has been involved. It has a capital

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stock of \$25,000 and has the following officers: T. C. Green, president and treasurer; R. C. Lieb, sales manager, and J. E. Morelock, secretary.

The Georgia Power Company, which is planning the construction of a transmission line from Tullulah Falls, Ga., for the service of several cities in eastern Tennessee, announces that it expects to have its hydroelectric plant in operation by July 1, 1912.

R. B. Cassell and W. A. Rockwell, Harriman, Tenn., have purchased 4000 acres of timber land and have incorporated the Lone Mountain Company for the purpose of developing the property. The land has an outlet on the Queen & Crescent Railroad.

New knitting machinery is to be installed by the Rockwood Mills, Rockwood, Tenn. Power and wood-working machines for a box factory will also be required.

The Chattanooga & Tennessee River Power Company has about completed its plant on the Tennessee River, near Chattanooga, where it will develop 56,000 hp. The company plans to serve several cities, including Chattanooga, Huntsville and Stevenson.

New power equipment, in addition to shears, punches and other metal-working machinery, have been installed in the plant of the Gadsden Car Works, Gadsden, Ala., which will resume operations this week after a shut-down of a month. The plant is operated by the Queen & Crescent Railroad.

Four Georgia towns now have plans under way for the establishment of systems of water-works. They are Colquitt, Maysville, Flowery Branch and Zebulon.

The Anniston Electric & Gas Company is in the market for a boiler of large capacity. It is also planning the erection of an additional gas tank.

W. A. Guenther & Sons, Owensboro, Ky., are asking for prices on a 50-kw alternating-current generator.

The Guildford Foundry Company has filed articles of incorporation at Greensboro, N. C. George F. Newman, W. W. Smith and W. A. Cooke are the incorporators.

The Thomas Grate Bar Company, Birmingham, Ala., has purchased a plant and is preparing to secure equipment for the manufacture of grate bars.

The Morrison Frogless Switch Company has been incorporated at Birmingham, Ala., and will manufacture a patented railroad switch. H. W. Morrison is reported to be promoting the company.

A gas tank is to be erected by the Birmingham Railway, Light & Power Company, Birmingham, Ala.

Six turbine-driven generators will be purchased by the Birmingham Water, Light & Power Company, Birmingham, Ala., on Warrior River. The company plans to transmit electricity to several towns in the central Alabama district.

The Columbus Electric Company, Columbus, Ga., is floating a \$1,000,000 loan, the proceeds of which are to be used in the construction of a new power-house with a capacity of 3000 kw. The lines of the company are to be extended to several neighboring communities. The Stone & Webster Engineering Corporation, Boston, is in charge of the improvements.

The Stephens Sub-Soil Plow Company has been organized at Little Rock, Ark., and will manufacture plows. It has \$25,000 capital stock. H. W. Hennegin, W. A. Stephens and G. W. Hendricks are among those interested.

C. B. Morris is manager of the Noiseless Wheel & Truck Company, Cedartown, Ga., which is capitalized at \$100,000. New buildings are to be erected at once, a site having been secured.

Chicago

CHICAGO, ILL., August 1, 1911.

The machinery business continues to be so inconsistent that a week of reasonable activity is usually followed by a like period of dullness. While a moderate volume of miscellaneous orders were received during the past week, no individual sales of note are reported. Local machinery dealers and machinery supply interests gave considerable attention during the week to the railroad foremen in attendance here at the convention of the International Railway General Foremen's Association. Demonstrations of a number of recent machine tools were made.

The American works of the American Bridge Company at Chicago is to have a new boiler plant. The present boiler plant is antiquated and has been operated to a considerable extent from heating furnace waste heat. The number of boilers in the old plant in operation has been gradually

cut down until but one has been on for some time. This has reduced the operations of the plant, and now when it is to be run more fully new boilers are required to be installed.

The Bull's Eye Mfg. Company, Chicago, has been incorporated with a capital stock of \$15,000 as a general manufacturing and merchandise business. The incorporators are George A. Chitton, William T. Jones and L. Heislar.

The Industrial Engineering Company, Chicago, has been incorporated with a capital stock of \$1,000 for the designing of machinery and special appliances. The incorporators are William Eichhoff, Herman Banzenmacher and Benjamin L. Matthews.

The Mechanical Machine & Tool Works, Chicago, has been incorporated for the manufacture of machinery, patterns and general hardware, with a capital stock of \$6,000. Henry S. Jewell, F. L. Rissling and Fred C. Jewell are the incorporators.

The Mid-Western Car Supply Company Chicago, has been incorporated with a capital stock of \$25,000 for the manufacture of railway material and supplies. The incorporators are G. A. Chitton, J. G. Anderson and R. A. Raymond, all of Chicago.

The Chicago Octagon Rotary Engine Company has been incorporated with a capital stock of \$100,000. This company will engage in the manufacture of engines, pumps and accessories. Frederick J. Ratsch, Frank B. Echlin and George F. Leiger are the incorporators.

The capital stock of the Green Engineering Company, Chicago, has been increased from \$300,000 to \$500,000.

The Otis Elevator Company will move its Moline plant to Quincy and is preparing plans for the erection of an additional \$50,000 building at that place to be 160 x 250 ft.

Harry M. Schriver, at the mayor's office, Rock Island, Ill., will receive bids for two boilers, in accordance with plans and specifications at that office.

The Bradley Polytechnic Institute, Peoria, Ill., is about to erect a power house to cost \$25,000 and the building contracts are already placed.

The Allith-Prouty Company, which has arranged to locate at Danville, Ill., expect to begin the erection of its new factory buildings within a few weeks.

The Springfield Mattress Company, Springfield, Ill., will erect an addition to its plant to cost \$24,000.

The United Cold Storage Company, Milwaukee, Wis., is planning to build a six-story warehouse, 140 x 150 ft., and an adjoining power house for refrigerating. An expenditure of several hundred thousand dollars is contemplated.

The Federal Engineering Company, Milwaukee, Wis., will erect a machine and blacksmith shop, to be one story and 60 x 150 ft., at Scott avenue and Thirty-sixth street.

City Engineer J. A. Mesiroff, Milwaukee, Wis., recommends the appropriation of \$40,000 from the sewerage funds to build an electric plant at the refuse incinerator, to utilize the waste steam in operating the Milwaukee River and Kinnickinnic River flushing tunnel pumping engines.

According to articles of incorporation filed by the LaPlant Tool Company, Marshalltown, Iowa, the company will manufacture implements and machinery of all kinds. The capital stock authorized is \$25,000. The officers of the company are: President, G. W. LaPlant; vice-president, J. C. Williams; secretary, E. L. Williams; treasurer, J. J. McGuire.

A charter has been granted for the incorporation of the Collinsville Mill & Elevator Company, Collinsville, Okla., with a capital stock of \$14,000.

The Hart-Parr Company, Charles City, Iowa, expects to add during the present summer a foundry to its plant.

The American Steel Tie Company, Salt Lake City, Utah, has been incorporated to manufacture a patented steel tie. The capital stock of the company is \$100,000, and the officers are Joseph R. Murdock, president; John T. Clark, vice-president; J. W. Musser, secretary and treasurer.

W. C. Gibbs, at the office of the State Board of Control, Topeka, Kan., will receive bids covering two tubular boilers.

The Cole Motor Company, Indianapolis, has bought the ground upon which its present plant stands, and will build a four-story concrete and steel addition, 100 x 190 ft., to cost \$60,000. In the past this company's operations have been confined to assembling automobiles, but in the future much of the machine work will be done for which new machinery will be required.

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The Muncie Brass & Aluminum Castings Company has been organized at Muncie, Ind., and will occupy a part of the foundry of Patrick Murphy. J. E. Evans is the secretary and treasurer.

The city of Fort Wayne, Ind., is to build a new 4,000,000-gal. pumping station, plans for which are in the hands of J. F. King, architect.

Detroit

DETROIT, MICH., July 31, 1911.

The machinery market has been considerably more active this week than for some time past, and there is a very cheerful feeling, both among dealers and manufacturers. Automobile manufacturers are now beginning the production of their 1912 models and are placing orders for considerable new machinery equipment. The Ford Motor Company is actively in the market, and is reported to have placed some good-sized orders for machinery to be installed in the new additions now being erected at its plant. While the demand for special equipment continues to be relatively more brisk than for standard lines, still sales of the latter are picking up in a marked degree, and will probably continue to grow now that the fall season has really opened up. Dealers report a good volume of small orders, both in the small tools and heavier machinery, and that a good deal of business which has been pending for some time is now being closed up. Inquiries also are very encouraging. Several points in the State, notably Saginaw, are experiencing industrial booms, and traveling salesmen are bringing in good orders.

Reports from the mining centers in northern Michigan indicate that considerable activity is in evidence in the installation of new mining machinery and that a large amount of new work in the mines is being pushed. Many of the lumber companies which suffered losses during the recent forest fires are contemplating the erection of new sawmills, and a strong demand for equipment along this line is looked for. A good many Michigan counties are carrying out a good roads' programme this year, and considerable road-making machinery is being purchased in small lots. To summarize conditions, there seems to be general resumption of industrial activity in almost all lines, and the outlook for general business, both in Detroit and throughout the State, seems very bright indeed.

The Continental Motor Mfg. Company, Muskegon, Mich., has purchased a factory site embracing 25 acres in this city and will immediately begin the erection of a plant comprising eight buildings. There will be an assembling building, an administration building, a machine shop, a forge shop motor testing and heat-treating buildings and a power plant with a capacity of 1000 hp. The principal contract has been awarded to the Ferro Concrete Construction Company, Cincinnati, Ohio. The company does not intend to abandon the Muskegon plant, but will continue it as a branch factory. Detroit offices have been opened at 505 Ford Building.

A fire which nearly destroyed the Burtenshaw Building in this city caused losses to the Eliek Bros. Tool, Die & Stamping Works, Weber Vending Machine Company and Capewell Horseshoe Company. Considerable machinery and equipment were damaged.

The Eckliff Automatic Boiler Company has been organized with a capital stock of \$5,000 by James C. Eckliff and James R. Postal.

Following changes in the management of the Kelsey-Herbert Company, manufacturer of automobile bodies, the name of the company has been changed to the Herbert Mfg. Company.

The Midland Machine Company has filed articles of incorporation, giving its capital stock as \$100,000. George L. Grimes is the principal stockholder.

The Detroit Oval Mfg. Company, manufacturer of picture frames, has increased its capital stock from \$7,000 to \$21,000.

The National Gas Water Heater Company has been incorporated with a capital stock of \$25,000 by Joseph M. Madigan and Matthew Mayer, and will manufacture a gas heater of new design.

The National Motor Truck Company has been organized at Bay City, Mich., and has acquired a site of six acres, upon which buildings for its new plant will shortly be erected. The manufacturing building will be 66 x 268 ft. and three stories, the machine shop 50 x 60 ft. and the motor-test shop 60 x 80 ft., both one story. Henry B. Smith and Henry C. Finkenstaedt, president and secretary respectively of the new company, are also officers of the National Cycle & Mfg.

Company, which will make the motors for the new trucks.

The Standard Oil Company will shortly commence construction work on a large storage plant at Alpena, Mich.

Fire destroyed the plant of the Northern Foundry Company, Alpena, Mich., last week, causing a loss of about \$5,000. The foundry will be rebuilt at once.

The Standard Pure Food Company, Owosso, Mich., which recently suffered the loss of its plant by fire, has been reorganized under the name of the Standard Flaked Food Company. The construction of a new building for the company will be begun in the near future.

The Snyder & Fuller Furniture Mfg. Company, Grand Rapids, Mich., has filed notice of an increase of capital stock from \$10,000 to \$15,000.

The city of Flint, Mich., is planning the construction of a municipal filtration plant and accessory buildings in connection with the water-works system.

The Shaw-Walker Company, Muskegon, Mich., is making an addition to its plant, consisting of a machine shop and engine house 30 x 60 ft. and one story. Two new dry kilns, each 36 x 76 ft., are also being constructed.

The P. Ernewein Wagon Company, Muskegon, Mich., has under construction a new machine shop 33 x 83 ft.

The Board of Public Works of Escanaba, Mich., has awarded the contract for the construction of the new municipal gas plant to F. W. Freese, of Fort Wayne, Ind. The plant will cost approximately \$25,000.

The Jackson, Mich., plant of the American Fork & Hoe Company, Cleveland, Ohio, will soon be enlarged by the addition of a new building 60 x 196 ft., three stories. The addition will be used as a machine shop and for electric welding and polishing departments. It is also stated that a new forge shop will be erected soon. The contract for the erection of the structure has been awarded to Crowell & Sherman, Cleveland.

The Owosso Mfg. Company, Owosso, Mich., manufacturer of screens and screening, is erecting a considerable addition to its plant.

Agnew & Ritchie, manufacturers of berry boxes, are contemplating the removal of their factory from Dowagiac, Mich., to Niles, Mich., with a view of increasing the capacity of their plant.

Hastings, Mich. has voted in favor of bonding for \$120,000 for the erection of a municipal hydro-electric plant. It is expected that contracts for the construction of the plant will soon be awarded.

A. J. Randall, of Caro, Mich., is organizing a company for the purpose of developing a tract of coal land near that city.

The Escanaba Traction Company, Escanaba, Mich., is constructing a large power dam and pulp mill on the Escanaba River. Considerable equipment will be required.

The Owosso Canning Company, Owosso, Mich., has been incorporated with a capital stock of \$40,000 and is rapidly getting the plant into shape for operation.

The Korff Mfg. Company, Lansing, Mich., manufacturers of metal specialties, has broken ground for a large addition to its factory, to provide for its rapidly increasing business. The new structure will be of brick construction 66 x 90 ft. and one story, and will house the company's oxidizing and plating department.

Construction has been begun on a large addition to the plant of the Estey Mfg. Company, Owosso, Mich. The new building will be about 64 x 80 ft. and four stories. Charles E. Ridgley, president of the company, reports an excellent volume of business and states that another and larger addition will probably be erected in the spring. The company is a large manufacturer of furniture.

It is announced that Niles, Mich., has been selected as a division terminal point by the Michigan Central Railroad Company. The company's shops, now located at Michigan City, Ind., will be moved there. A site has been secured and work on the erection of the shops will be commenced within the next thirty days.

St. Louis

ST. LOUIS, MO., July 31, 1911

The quietude which has been prevailing in the machine tool market continues, with no definite indications as to when there will be a change. The undertone of the market is good and the dealers believe that when the fall activities open up there will be a good deal

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doing. They assume this from the tentative inquiries which have been received, but which have not assumed the characteristics of lists sent out for actual bids on equipment. Several local manufacturing concerns are known to be contemplating enlargement this fall.

The Ludlow Saylor Wire Company, St. Louis, has taken out a permit for the construction of a four-story addition to its factory, and will increase its equipment and capacity for the manufacture of all grades and classes of wire cloth by about 50 per cent.

The Bucyrus Lead & Zinc Mining Company, Joplin, Mo., has been incorporated with \$60,000 capital stock and will put in a complete mining plant on its land near Joplin.

The Penton-Dowden Mfg. Company, Columbia, Mo., with \$100,000 capital stock, has been incorporated by W. P. Dowden, E. E. Penton and E. E. Moreland.

The Excelsior Tool & Machine Company, East St. Louis, has been awarded the contract for supplying steel castings, bolts and nuts to the United States Government for the Panama Canal. It amounts to about \$25,000.

The Widemann-St. Louis Cigar Box Mfg. Company, St. Louis, with \$90,000 capital stock, has been incorporated to take over and consolidate the manufacturing business of three cigar box companies, the St. Louis Cigar Box Company, St. Louis; the J. J. Widemann Cigar Box Company, St. Louis, and the A. G. Widemann Cigar Box Company, Kansas City, Mo. A new factory will be built and equipped in St. Louis.

The American Compound Door Company, Chicago, Ill., is understood to be planning the erection of a branch plant in St. Louis.

J. W. Wright & Co., dealers in machinery, have leased new quarters in a building at 1221-1223 North Broadway, and will remove as soon as the building is completed. The company is now situated at 801 North Second street.

The St. Louis Truck & Mfg. Company has been incorporated with \$50,000 capital stock by Frank G. Koehler, R. A. Koehler and George H. Martin to manufacture trunks. A plant will be equipped at once.

The Edgar Roberts Mfg. Company, with \$130,000 capital stock, has been incorporated by Edgar Roberts, H. Converse and George Supernowski, and will establish a plant in St. Louis for the manufacture of drugs and chemicals.

The W. R. Colcord Machinery Company, 821 North Second street, will remove to 1225-27 North Broadway as soon as the building can be completed for its occupancy.

The F. Burkhart Mfg. Company, St. Louis, manufacturer of excelsior and upholsters' supplies, will remodel its present plant and build an addition, for which it has just purchased a plot of ground 150 x 310 ft. New machinery will be installed.

Eastern Canada

TORONTO, ONT., July 31, 1911.

The dissolution of Parliament, just announced, means that political excitement will run high for the next seven weeks. That and the work of harvesting the crops, which this year will occupy the attention of the farmers, bankers and railroad people more than in any former year, cannot but detract somewhat from the activities in factories and warehouses. Up to the present, business has been all that could be desired. The enactment of the Canadian reciprocity legislation at Washington has been followed by a large exportation of Canadian pulp and paper to the United States, the provisions of the act coming into immediate effect so far as pulp and paper made from Canadian wood not subject to export restrictions are concerned. The expectation that the measure would become law gave a great stimulus to the pulp and paper-making enterprise of Canada. Within the last month six pulp and paper companies have incorporated in Canada with a total capital stock of \$11,500,000. There is every prospect that when the elections are over, and the crops are being marketed, Canada will have business activity in all lines far exceeding any it ever had before.

The ratepayers of Hamilton, Ont., voted on Tuesday on a by-law to spend \$505,160 on the construction of a municipal power-distributing plant and to enter into a contract to take power from the Hydro-Electric Commission. The construction of the system will, it is expected, be begun early next year.

John M. Garland & Sons are putting up a seven-story warehouse in Ottawa.

The ratepayers of Ottawa are to vote, September 6,

on a by-law to provide the installation of an electric booster system for supplying the high buildings with fire protection. The cost of this is to be \$60,000. In Ottawa South \$50,000 is to be expended on water works extension.

The National Bridge Company's works at Longue Pointe, Montreal, are to cost \$100,000. N. A. Timmens is building a factory in Montreal to cost \$64,000. The following other factory buildings and extensions are in progress in Montreal: Pierre Brault, rebuilding factory after fire, \$35,000; A. Ramsay & Son Company, Ltd., paint factory, \$27,000; J. C. McLaren Belting Company, factory, \$17,000; St. Lawrence Flour Mills (3000 barrel) and elevator (350,000 bushels); Dominion Flour Mills (2000 barrel) and elevator, costing about \$1,000,000 each; the Montreal Terra Cotta Lumber Company's plant, \$150,000; James Strachan, bakery, \$25,000; Stuart's, Ltd., bakery, \$25,000; coal storage and handling plant for the Montreal Light, Heat & Power Company, \$70,000; Canada Paint Factory, \$16,000; United Shoe Machinery Company, factory, \$195,000; die factory, J. Dupre, \$25,000; Shawinigan Water & Power Company's power house, \$60,000; Wind Mill Point, elevator for Grand Trunk Railway, \$125,000.

Plans are being prepared for three sedimentation tanks for the town of North Toronto.

Up to August 12 tenders will be received by the Waterworks and Electrical Department, London, Ont., for the supplying of 3300 ft. of 18-in., 1600 ft. 12-in. and for 1000 ft. 12-in. c.i. pipe, with valves and special.

The city of Quebec will shortly issue a call for tenders for waterworks construction to cost \$700,000. Five miles of cast-iron pipe will be required, including a 40-in. main. W. D. Baillarge is city engineer.

The city of Toronto has awarded to Miller, Cummings & Robertson, Toronto, the contract for the new water intake, to cost \$259,900.

For the Grand Trunk Pacific Railway Company's roundhouse at Grand Falls, N. B., the supplies will cost about \$100,000.

Dick & Son, Welland, Ont., have begun the construction at Niagara Falls, Ont., of an addition to the American Cyanide Company's plant.

The Gorton Pew Fish Company, Gloucester, Mass., is about to proceed with the construction of its projected fish dryer and cold storage plant at Louisburg, N. S.

The Town Council of Tillbury, Ont., will submit to the ratepayers a by-law providing for the granting of a \$5,000 bonus to the W. C. Crawford Company, which is to build a factory.

Earl B Douglas, Allentown, Pa., is under contract to build a large wire mill for the Dominion Steel Company. The contract provides that he shall construct and operate a wire mill to cost not less than \$1,500,000. The plant is to have a capacity of 400 tons of finished wire products a day. The company's decision to construct a wire mill is only one feature of a comprehensive plant whereby \$15,000,000 is to be expended in improvements and enlargements in the next two years.

The Lachine Gas Company, Montreal, has just put in a 45-hp. gas engine of the Tangye type, made in Birmingham, England.

It is stated that the Nashwaak Lumber Company which is being organized in St. John, N. B., will be the Canadian branch of the Farnsworth & Jardine Company, Liverpool, England. It will take over the control of the Alexander Gibson Railway & Mfg. Company's lumber property in New Brunswick.

A by-law to raise \$80,000 for enlarging the municipal power and light plant of Orillia, Ont., has been approved by the ratepayers.

Officials of the Shawinigan Water & Power Company expect to have its new transmission lines between Shawinigan and Montreal in place and to be delivering power in the latter city over its own right-of-way by October 1. This line, in emergency, could deliver up to 100,000 hp.

A storm July 24 blew down the building which the Page-Hersey Company is putting up at Welland, Ont., for its galvanizing plant.

The Crown Plaster Company's gypsum mill at Lythmore, Ont., was completely destroyed by fire July 27. Loss, \$75,000.

A contract has been signed between the Dominion Government and the Canadian Vickers, Ltd., Montreal, for the construction of a dry dock at Montreal and the payment of a subsidy by the government to the company. The dock is to be completed and ready for operation by December 31, 1913. It is to be a floating one, which will be built by Vickers Sons & Maxim, of

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England, for the Canadian branch of the firm, of which F. O. Lewis is the head.

The Smith Mfg. Company, Toronto, Ont., manufacturer of cotton batting, glazed cotton wadding and shoddy, is erecting a new mill in that city to accommodate its increasing business.

The Lowe Bros. Company, Dayton, Ohio, manufacturer of paints and varnishes, is having plans prepared for a Canadian branch factory at Toronto, which will be operated by Lowe Bros. Company, Ltd. The plans call for a building five stories and basement, 40 x 140 ft.

The Montrose Paper Company, Thorold, Ont., is having plans completed for an addition to its manufacturing plant, which will be made this summer.

The Diamond Flint Company, Hamilton, Ont., will erect a one-story and basement factory, 150 x 300 ft., steel frame, concrete and tile, to cost \$40,000. Considerable equipment will be required, including two glass furnaces.

The Pacific Coast

PORTLAND, ORE., July 25, 1911.

The machine tool business is of a scattering nature and comparatively quiet. Very few new orders for large tools have appeared, and while there is some demand for shop equipment of a general order, individual sales are of little importance. Some improvement in the line of small tools is expected within a few weeks, but so far there is no indication of any general movement of heavy equipment. General conditions, however, are encouraging. Grain crops in general through Oregon and Washington are in good shape, and unusually good returns are realized from the fruit crops, while there are some indications of revival in the lumber industry.

Most of the logging camps and mills along the Columbia River have resumed operations, and while some plants in other parts of the territory are still idle, there is a steady demand for both logging and wood-working machinery. A feature of this trade is the increase of electric and internal combustion power units, the latter finding a considerable field in connection with logging. Shops at Portland and Seattle, Wash., have had considerable marine work at this season, and numerous new inquiries of a small nature are coming out. The implement trade is well sustained in eastern Oregon, Washington and Idaho, and the demand for implements for the Orient is still a prominent feature, one of the largest shipments of the season having left Tacoma, Wash., last week.

The Holmes Machinery Company has been incorporated at Tacoma, Wash., with a capital stock of \$20,000, by H. Hussey, H. J. Hill and others.

The General Machinery Company has been incorporated at Spokane, Wash., with a capital stock of \$10,000, by E. Simons and Daniel Brown.

Thomas J. Shea has taken a contract for installing an oil-burning system in the Government dredge Clatsop.

Following the consolidation of the Seattle Steel Company and the rolling mill of the Pacific Hardware & Steel Company in this city with the Pacific Coast Steel Company, San Francisco, it is reported that the Portland plant is to be materially enlarged.

The St. John's Shipbuilding Company, Portland, has taken a contract for a large dredge hull for the Standard American Dredging Company, to be operated at Los Angeles harbor. The machinery will be installed at San Francisco.

The Kent-Marvin Company, operating a machine shop at Bellingham, Wash., has been incorporated with a capital stock of \$12,000, by W. R. Marvin, C. E. and H. W. Kent.

A large Mershon resaw has been installed in the Weyerhaeuser Lumber Company's mill at Everett, Wash., and the Sumner Iron Works is installing a large steam engine in the same plant.

The Ebey Logging Company, operating near Arlington, Wash., is equipping all its engines and locomotives with oil burners.

The Great Northern Railway Company is putting up a new brick machine shop building in its yards at Everett, Wash.

The business of the Pacific Blow Pipe Company, Tacoma, Wash., has been purchased by A. Carlson and S. E. Young.

The Railway Equipment Company, Portland, has taken the agency for wire rope manufactured by the Trenton Iron Company, Trenton, N. J.

The Ferry-Baker lumber mill at Everett, Wash., has installed an Allis-Chalmers power outfit, including a 1000-kw. steam turbine generator and individual motors for various parts of the mill. A similar outfit is being installed for the Vancouver Lumber Company, Vancouver, B. C.

The Chehalis River Logging & Shingle Company is preparing to install a sawmill at Centralia, Wash.

New equipment will soon be required for the Gilt Edge Shingle Mill, Bellingham, Wash., which is preparing to rebuild the plant burned a few weeks ago.

The Northwestern Plow Mfg. Company has been incorporated at Spokane, Wash., with a capital stock of \$200,000, by C. E. North, R. Peyton and others.

The S. P. Hicks Wire Rope Company, Seattle, Wash., is preparing to install equipment for the manufacture of wire rope on a large scale.

J. A. Sidney has been appointed trustee for the Henshaw-Bulkley Machinery Company, San Francisco. Announcement of the failure of this company was made some time ago.

The Globe Iron Works, Stockton, Cal., is about to move its plant to a site of eight acres at Sacramento, Cal. The new plant will include a foundry, machine shop, forge shop, car shop, pattern shop and storage, warehouse and office building. The buildings will be of steel and concrete construction and will be ready about January 1, 1912. The company will specialize on mine cars, centrifugal pumps, dredger machinery and power-transmission appliances in addition to doing a general foundry and machine business.

Western Canada

WINNIPEG, MAN., July 29, 1911.

The telegram received by the Minister of Labor at Ottawa yesterday from the president of the Western Coal Operators' Association to the effect that the latter would accept the recommendation of the Board of Investigation and Conciliation for the settlement of the strike, gives great satisfaction to all consumers of fuel in the prairie provinces, where the coal shortage was beginning to cause alarm. Another state of affairs that has become more cheering for the Westerners is the prospect for harvest labor. It looks now as if the field force would be sufficiently recruited from the United States and the United Kingdom. The crop reports grow brighter as the time for harvest approaches. The question of money is causing some uneasiness and until after the crop movement is in a forward state there is likely to be a shortage of funds for all but the most necessary business.

The contract for the installation of a waterworks system for Penticton, B. C., has been awarded to Macdougall & Co., Vancouver. The contract included the laying of 20 miles of steel and cast-iron pipe, and the construction of a reservoir, intake chambers, etc. The cost will be about \$65,000.

The Canadian Mineral Rubber Company, Victoria, B. C., has installed part of the machinery for its new asphalt plant.

The municipality of Chilliwack, B. C., has under consideration the purchase of a cement pipe-making plant. T. B. Croly is the city engineer.

It is expected that tenders will soon be called for the construction of a bridge across the Columbia River at Trail, B. C. The Department of Public Works of British Columbia, Victoria, B. C., has the letting of the contract, which will amount to about \$50,000.

Tenders are soon to be called by the Great Northern Railway Company for the construction of a wharf and freight shed at Vancouver, B. C., to cost \$400,000.

A. G. Langley & Co., Vancouver, B. C., have received the contract to build the suspension bridge which the Provincial Government of British Columbia is putting over Churn Creek, in the Lilloet district of that province. The cost is to be about \$80,000.

The contract for the addition to the New National Transcontinental Railway car shops at Transcona, near Winnipeg, will be awarded to Haney, Quinlan & Robertson, who are the lowest tenderers and the contractors for the first shop built. The contract price is \$2,500,000 and the addition will be built to the north and west of the present structures and is to be finished within one year.

The City Commissioners of Edmonton, Alberta, awarded the order for a steam-driven centrifugal pump of 6,000,000 gal. daily capacity, to cost \$18,000, to the Canadian Boring Company, Montreal, but as the company failed to comply with the guarantee terms the contract was given to the Moran Company, Seattle.

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The B. C. Electric Railway Company has turned out a 30-ton freight locomotive from its shops at New Westminster, B. C.

The Canadian Northern Railway Company will send to its Port Mann terminal point in British Columbia locomotives built by the Canada Foundry Company, Toronto, costing about \$300,000.

Texas

AUSTIN, TEX., July 29, 1911.

The splendid cotton prospects and other favorable crop conditions are stimulating business activity in various lines. If the present indications for an extraordinarily large cotton production are verified it is certain that Texas will enter upon a wonderful era of development and improvement this fall. Already tentative plans are under consideration for the inauguration of large industrial enterprises that will require big amounts of machinery. In New Mexico and Arizona there is an increasing demand for mining and irrigation machinery. Mexico is still an unsettled market for American machinery, but hopes are entertained that conditions in that country will soon improve.

Surveys are being made for the proposed extension of the irrigating canal system of the Harlingen Land & Water Company in the lower valley of the Rio Grande. The main canal will be extended five miles, and several miles of laterals will also be excavated. The work will be done by means of dredges.

The Commercial Club of Pecos is promoting the establishment there of a broom factory that will have a daily capacity of 100 dozen brooms and will give employment to 60 people.

The recent election held at Greenville resulted favorably on the proposition of issuing \$85,000 of bonds for improvements to the water-works system. This amount will be added to the recent bond issue of \$50,000 that was voted.

The Commercial Acid Company, St. Louis, Mo., will establish a large sulphur factory at Texarkana. It has acquired a site for the proposed plant.

The O'Neal Engineering Company, Dallas, has been awarded the contract by the City Council of Chillicothe for the construction of the new municipal water-works plant and distributing system.

Tucker & Newman are building a new cotton gin at Cleburne. Another cotton gin is also being equipped there by Winfield Scott, of Fort Worth.

The Magnolia Petroleum Company will install a large distributing plant at Amarillo. It has purchased the site for the proposed improvement.

An election of taxpayers of Paducah will be held on August 14 for the purpose of voting on the proposition of issuing \$27,000 of bonds for the construction of a water-works plant and distributing system and \$10,000 for street improvement. The city recently granted a franchise for the installation of an electric-light plant.

The City Council of Lubbock has let the contract for a complete sanitary sewer and water-works plant and distributing system to E. L. Dalton and Eugene Campbell, Dallas.

The Farmers' Gin Company is installing an electric-light plant at Stockdale.

H. D. Brown is promoting the establishment at El Campo of a peanut mill. There is a considerable acreage of peanuts being grown in this section this year.

The Commercial Club of Bryan is promoting a cotton-seed oil mill at that place. A syndicate of Eastern men has the proposition under consideration.

The Texas Central Railroad will install new machine shops at Cisco and will make other improvements to its property.

The City Council of Waco has under consideration the proposition of issuing \$350,000 of bonds for improving the municipal water-works plant and distributing system.

Johnson & Morgan will build a large broom factory at San Marcos.

The Mexia Light, Water & Sewerage Company is preparing to install additional machinery in its lighting plant at Mexia.

H. A. Smith has prepared plans for the construction of a large dam across a deep canyon near Noria, State of Sonora, Mexico, and the installation of a hydro-electric plant. This plant will have a capacity of about

1000 hp. and the electrical energy will be transmitted to the mines and smelters in that section. The dam will be 150 ft. high and from 15 to 100 ft. wide. Besides providing power for the hydro-electric plant it will give a water supply for irrigating about 15,000 acres of land.

C. M. Dollins and associates have organized the Farmers' Electric, Gin & Ice Company, which will build a large cotton gin and ice factory at Greenville.

Charles Jones is arranging to construct a 15-ft. dam across the Colorado River near Delvalle, near Austin, and to install an irrigation system that will water about 8000 acres of land.

R. B. Batton, of El Paso, and associates, who own a large marble deposit in the Portrillo Mountains near Las Cruces, N. M., will install a stone-cutting and quarry plant to cost \$250,000.

The Southern Steel Products Company has been organized at Dallas. The incorporators are C. H. Marguess, Owen Hughes and W. E. Wethered.

The Farmers' & Merchants' Gin Company has been formed at Sherman, with a capital stock of \$10,000. The incorporators are George F. Murphy, W. R. Brents and Edward Kidd.

W. M. Reed, district engineer of the United States Reclamation Service, has prepared specifications and will soon advertise for bids for the installation of steam-heating plants in the Government building at the site of the Elephant Butte dam in New Mexico. Bids will be opened at Elephant Butte August 15.

The Compania Jabonera of Torreon, Mexico, which recently increased its capital stock from \$1,500,000 to \$2,000,000, will install a large amount of additional machinery for the purpose of enlarging the capacity of the plant.

Government Purchases

WASHINGTON, D. C., July 31, 1911.

The Bureau of Yards and Docks, Navy Department, Washington, will open bids August 12 for one 12-in. suction dredge with a capacity of not less than 100 cu. yds. of mud or sand per hour. The machinery shall be electrically operated by three-phase 60-cycle 220-volt induction motors.

The United States Engineer's Office, Portland, Ore., will open bids September 6 for one steel seagoing suction dredge.

The Commissioners of the District of Columbia, Washington, opened bids July 24 for replacing two condemned boilers in the Eastern High School, as follows: G. W. Forsberg, Washington, \$1,694; Eubank Bros., Washington, \$2,075; Coberth, Haines & White Company, \$1,427.64; A. D. Granger Company, New York, \$2,668; J. E. Hurley, Washington, \$1,570.

The Bureau of Supplies and Accounts, Navy Department, Washington, opened bids July 25 for material and supplies for the navy yards, as follows:

Schedule 3748, Class 21—One centrifugal sand mixing machine—Bidder, 74, Federal Foundry & Supply Company, Cleveland, Ohio, \$325 and \$425; 134, Manning, Maxwell & Moore, New York, \$164 and \$174; 170, J. W. Paxson Company, Philadelphia, Pa., \$380; 199, William Sellers, Philadelphia, Pa., \$380.

Class 22—Three small pneumatic tripod sand shakers—Bidder 74, Federal Foundry & Supply Company, Cleveland, Ohio, \$60; 96, Hanna Engraving Works, Chicago, Ill., \$60.75; 103, International Steam Pump Company, New York, \$62.50; 134, Manning, Maxwell & Moore, New York, \$58.50; 165, S. Obermayer Company, Cincinnati, Ohio, \$60; 242, Drew Machinery Agency, Manchester, N. H., \$60.

Class 23—One core-making machine—Bidder 74, Federal Foundry & Supply Company, Cleveland, Ohio, \$144; 165, S. Obermayer Company, Cincinnati, Ohio, \$165; 233, Wadsworth Core Machine & Equipment Company, Akron, Ohio, \$144; 242, Drew Machinery Agency, Manchester, N. H., \$165.

Schedule 3738, Class 121—Six motor generators and six spare parts for Boston, Brooklyn, Mare Island and Puget Sound—Bidder 31, Crocker-Wheeler Company, Ampere, N. J., units: 58, Diehl Mfg. Company, Elizabethport, N. J., \$2,244; 77, Fort Wayne Electric Works, Fort Wayne, Ind., \$1,903.50; 91, Holtzer-Cabot Electric Company, Brookline, Mass., \$2,549.88.

British Columbian Mining in 1910.—The annual report of the Minister of Mines of the province of British Columbia for the year ending December 31, 1910, has been received, being an account of mining operations for gold, coal, etc. The production of coal was 3,139,235 gross tons, the greatest in the history of the Province; of gold, \$540,000; of silver, 2,450,241 oz.; of lead, 34,658,746 lbs.; of copper, 38,243,934 lbs., a decrease of over 7,350,000 lbs. as compared to 1909, and of zinc, 4,184,192 lbs. No iron ore was mined. A sketch map showing mining divisions in colors is included.

Current Metal Prices.

The following quotations are for small lots, New York. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

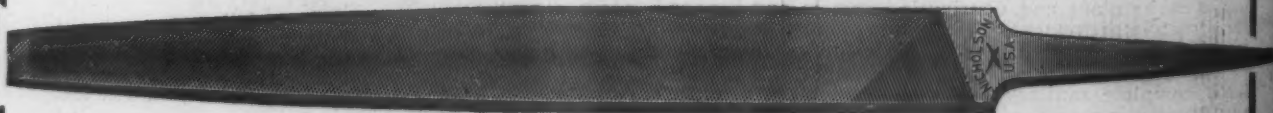
| IRON AND STEEL— | | Genuine Iron Sheets— | | METALS— | |
|--|--|--|--|--|--|
| Bar Iron from Store— | | Galvanized | | Tin— | |
| Refined iron: | | Nos. 22 and 24..... | | Straits pig..... | |
| 1 to 1½ in. round and square..... | | No. 26..... | | Lake ingot..... | |
| 1½ to 4 in. x ½ to 1 in..... | | No. 28..... | | electrolytic..... | |
| 1½ to 4 in. x ½ to 5-1..... | | Corrugated Roofing— | | Casting..... | |
| Rods—¾ and 1-16 round and square..... | | 2½ in. corrugated..... | | Spelter— | |
| Angles: | | No. 24..... | | Western..... | |
| 3 in. x ¾ in. and larger..... | | No. 26..... | | Zinc— | |
| 3 in. x 3-16 in. and ½ in..... | | No. 28..... | | No. 9, base, casks..... | |
| 1½ to 2½ in. x ¾ in..... | | Tin Plates— | | Lead— | |
| 1½ to 2½ in. x 3-16 in. and thicker..... | | American Charcoal Plates (per box) | | American pig..... | |
| 1 to 1½ in. x ¾ in..... | | "A.A.A." charcoal: | | Bar..... | |
| ¾ x ¾ in..... | | IC, 14 x 20..... | | Solder— | |
| ¾ in. x ¾ in..... | | IX, 14 x 20..... | | ½ & ¾, guaranteed..... | |
| 1½ x 3-32 in..... | | A. charcoal: | | No. 1..... | |
| Tees: | | IC, 14 x 20..... | | Refined..... | |
| 1 in..... | | IX, 14 x 20..... | | Prices of solder indicated by private brand vary | |
| 1½ in..... | | American Coke Plates—Bessemer— | | according to composition. | |
| 1½ to 2½ x ¾ in..... | | IC, 14 x 20..... | | Antimony— | |
| 1½ to 2½ x 3-16 in..... | | IX, 14 x 20..... | | Cookson..... | |
| 3 in. and larger..... | | American Terne Plates— | | Halleys..... | |
| Channels, 3 in. and larger..... | | IC, 20 x 28 with an 8 lb. coating..... | | Other brands..... | |
| Bands—1½ to 6 x 6-16 to No. 8..... | | IX, 20 x 28 with an 8 lb. coating..... | | Bismuth— | |
| Burden's "H. B. & S." iron, base price..... | | Seamless Brass Tubes— | | Per lb..... | |
| Burden's "H. B. & S." iron, base price..... | | List November 13, 1908..... | | Aluminum— | |
| Norway bars..... | | Brass Tubes, Iron Pipe Sizes— | | No. 1 aluminum (guaranteed over 99% pure), in | |
| Merchant Steel from Store— | | List November 13, 1908..... | | ingots for remelting..... | |
| Bessemer machinery..... | | Copper Tubes— | | Rods and Wire..... | |
| Toe calk, tire and sleigh shoe..... | | List November 13, 1908..... | | Sheets..... | |
| Best cast steel, base price in small lots..... | | Brazed Brass Tubes— | | Old Metals— | |
| Sheets from Store— | | List February 1, 1911..... | | Dealers' Purchasing Prices Paid in New York, | |
| Black | | High Brass Rods— | | Copper, heavy and crucible..... | |
| One pass, C.R. R. G. | | List February 1, 1911..... | | Copper, heavy and wire..... | |
| soft steel, cleaned..... | | Roll and Sheet Brass— | | Copper, light and bottoms..... | |
| No. 16..... | | List February 1, 1911..... | | Brass, heavy..... | |
| No. 18 to 20..... | | Brass Wire— | | Brass, light..... | |
| No. 22 and 24..... | | List February 1, 1911..... | | Heavy machine composition..... | |
| No. 26..... | | Copper Wire— | | Clean brass turnings..... | |
| No. 28..... | | List February 1, 1911..... | | Composition turnings..... | |
| Russia, Planished &c. | | Copper Sheets— | | Lead, heavy..... | |
| Genuine Russia, according to assort-ment..... | | Sheet copper hot rolled, 16 oz. (quantity | | Lead, tea..... | |
| Patent planished, W. Dewees..... | | lots)..... | | Zinc, scrap..... | |
| Wood..... | | Sheet copper cold rolled, 1½ lb advance | | | |
| Galvanized | | over hot rolled..... | | | |
| No. 12 and 14..... | | Sheet copper polished 20 in. wide and under, | | | |
| No. 24..... | | 1½ lb square foot..... | | | |
| No. 26..... | | Sheet copper polished over 20 in. wide, 2½ | | | |
| No. 28..... | | lb square foot..... | | | |
| No 20 and lighter 36 inches wide, 25¢ higher. | | Planished copper, 1½ lb square foot more | | | |
| | | than polished..... | | | |

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